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USING PATIENT INFORMATION FOR QUALITY IMPROVEMENT  
TRIPLER ARMY MEDICAL CENTER  
HAWAII

Graduate Management Project  
Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Health Administration  
by  
Major Dorothy A. Smith, MS

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### ABSTRACT

Total Quality Management (TQM) challenges health care organizations to provide high-quality clinical care that also meets or exceeds customer expectations. This requires the development of a reliable method for measuring the perceived quality of care and satisfaction from a patient's point of view.

The management problem addressed in this study is that no comprehensive, large-scale analysis of patient satisfaction had been conducted at Tripler Army Medical Center (TAMC) to measure the quality of care from the patient's perspective. Consequently, improvements which could be made to better align the health care processes with the needs and expectations of the customer had not been adequately defined.

The purpose of this study was to determine the current level of patient satisfaction and the extent to which various aspects of the health care delivery system at TAMC are contributing to patient satisfaction. This study used a quantitative research approach to collect and analyze data using a patient satisfaction survey. A mail-out, patient satisfaction survey was developed and multiple regression analyses were used to determine the major predictors of patient satisfaction.

The results of this study indicated that the majority of patients surveyed were very satisfied with the medical care they receive and rated TAMC as above average in their overall evaluation. The direct care aspects of the health care system had the greatest influence on patient satisfaction, and accounted for 56.8 percent of the variance in the patient's overall evaluation and 55.4 percent of the variance in overall satisfaction. This study was also successful in identifying areas to be used in the TQM process to improve the quality of care at TAMC.

# GRADUATE MANAGEMENT PROJECT TABLE OF CONTENTS

|   | PAGES |
|---|-------|
| ACKNOWLEDGMENTS . . . . .                       | i     |
| ABSTRACT . . . . .                              | ii    |
| TABLE OF CONTENTS . . . . .                     | iv    |
| CHAPTER   |       |
| I. INTRODUCTION . . . . .                       | 1     |
| Background . . . . .                            | 2     |
| Conditions Which Prompted the Study . . . . .   | 3     |
| Statement of the Management Problem . . . . .   | 6     |
| Literature Review . . . . .                     | 6     |
| Purpose of the Study . . . . .                  | 20    |
| II. METHODS AND PROCEDURES . . . . .            | 22    |
| Research Plan . . . . .                         | 22    |
| Conceptual Model . . . . .                      | 24    |
| Patients to be Assessed . . . . .               | 26    |
| Survey Development . . . . .                    | 28    |
| Survey Contents . . . . .                       | 31    |
| Survey Distribution . . . . .                   | 32    |
| Procedures . . . . .                            | 36    |
| Statistical Methods . . . . .                   | 36    |
| III. RESULTS . . . . .                          | 39    |
| Descriptive Statistics for Sample . . . . .     | 39    |
| Instrument Reliability . . . . .                | 44    |
| Descriptive Statistics for Instrument . . . . . | 45    |
| Correlation Coefficients . . . . .              | 56    |
| Principal Components Factor Analysis . . . . .  | 76    |
| Multiple Linear Regression Analysis . . . . .   | 78    |
| IV. DISCUSSION . . . . .                        | 81    |
| Level of Satisfaction . . . . .                 | 81    |
| Determinants of Satisfaction . . . . .          | 85    |
| Survey Instrument . . . . .                     | 92    |
| V. CONCLUSION AND RECOMMENDATIONS . . . . .     | 96    |
| VI. REFERENCES . . . . .                        | 102   |

## VII. LIST OF TABLES

|   |    |
|---|----|
| 1. Sample Demographic Characteristics . . .                                 | 40 |
| 2. Sample Utilization Characteristics . . .                                 | 42 |
| 3. Descriptive Data for Criterion and<br>Predictor Variables . . . . .      | 46 |
| 4. Criterion and Predictor Variables<br>Response Category Percentages . . . | 50 |
| 5. Frequency of Categorical Responses<br>to Open-Ended Questions . . . . .  | 55 |
| 6. Correlation Between Criterion and<br>Predictor Variables . . . . .       | 57 |
| 7. Inter-Item Correlations for<br>Predictor Variables . . . . .             | 60 |
| 8. Correlation Between Criterion and<br>Demographic Variables . . . . .     | 64 |
| 9. Correlation Between Criterion and<br>Utilization Variables . . . . .     | 68 |
| 10. Correlation Between Clinics and<br>Predictor/Utilization Variables . .  | 72 |
| 11. Results of Principal Components<br>Factor Analysis . . . . .            | 77 |
| 12. Results of Stepwise Regression<br>Analysis . . . . .                    | 79 |

## VIII. LIST OF FIGURES

|  |    |
|--|----|
| 1. The Total Quality Process Model . . . .                         | 3  |
| 2. Conceptual Model for Predicting<br>Satisfaction . . . . .       | 25 |
| 3. Return Rate by Beneficiary<br>Category . . . . .                | 33 |
| 4. Comparison of Sampling and Respondent<br>Compositions . . . . . | 35 |

## IX. APPENDICES

|   |     |
|---|-----|
| 1. Tripler Army Medical Center<br>Patient Satisfaction Survey . . . . | 107 |
| 2. Frequency Distribution Tables<br>and Histograms . . . . .          | 108 |

## INTRODUCTION

Across the United States, sweeping changes are taking place in the management of both manufacturing and service organizations. Guided by the works of Dr. W. Edward Deming, American organizations are readily adopting an all-encompassing, managerial approach that involves an integration of quality improvement throughout the organization. The Total Quality Management (TQM) philosophy espoused by Dr. Deming is predicated on the central theme that organizations must strive constantly to improve the quality of their systems and processes. The basic principles of this concept are to define opportunities for improvement, identify potential causes of problems, and then, take action to eliminate the causes.

While quality is by no means foreign to health care organizations, Labovitz (1991) has proclaimed TQM as one of the most exciting and important topics in modern American health care. Sanctioned by the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO), TQM offers the potential to affect positively not only the quality of care, but, also, the quality of services and administrative systems in health care organizations (O'Leary, 1992).



### Background

TAMC, a 536-bed acute and tertiary care center and teaching institution, formally adopted the TQM philosophy in 1992. The TAMC TQM vision developed by the Quality Improvement Council (personal communications, 9 March 1993) is:

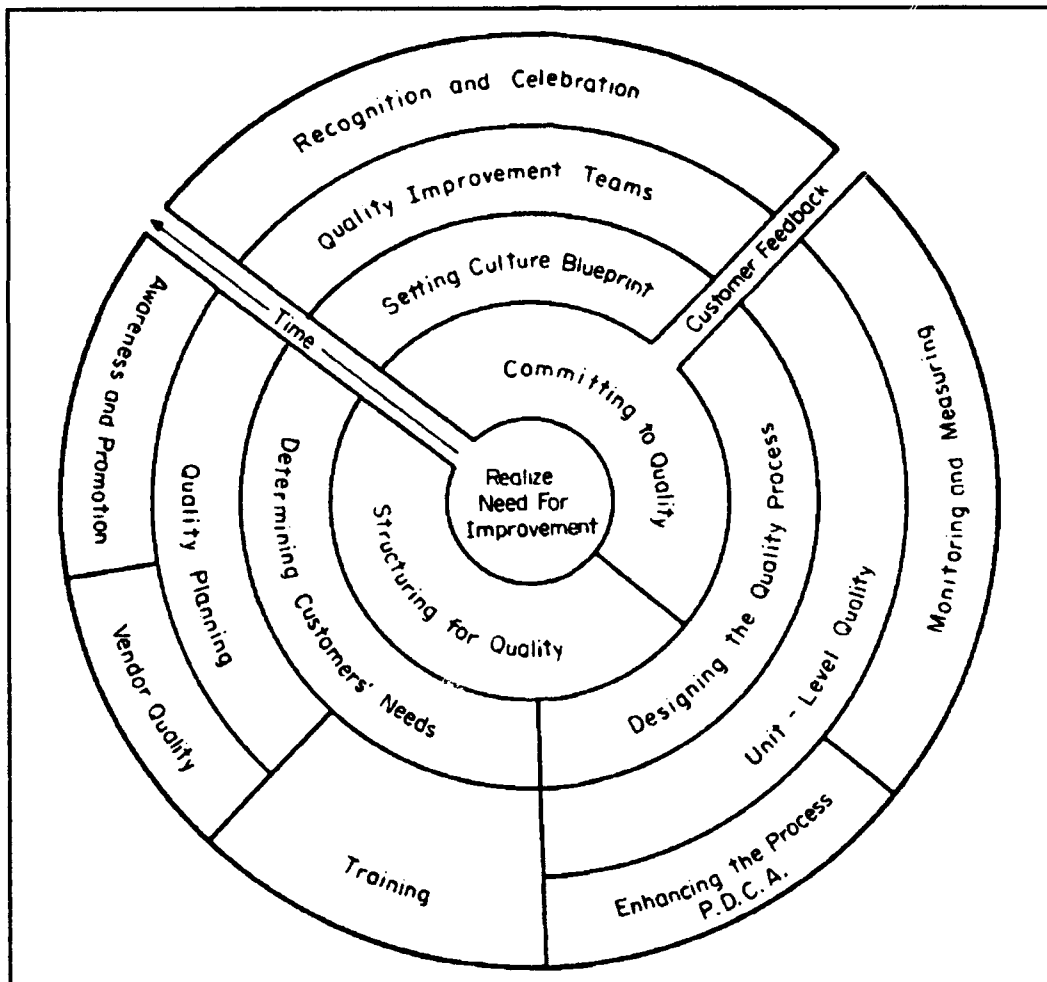
We are a federal health care facility. Our vision is to be the premier health care system in the Pacific Basin. Working together we will integrate modern technology and provide responsive, caring health services to our beneficiaries in time of peace and war.

As the only military hospital in Hawaii, TAMC provides health care support to not only the Army, but the Navy, Air Force, Marines, and Coast Guard. Additionally, TAMC is the only comprehensive federal referral center in the Pacific Ocean area and receives referrals from military hospitals throughout the Pacific Basin and the Pacific Island Trust Territories. As a major teaching hospital, TAMC maintains an active clinical research mission which supports its medical education programs and its patient care mission.

### Conditions Which Prompted the Study

Since May 1992, TAMC has been restructuring its approach to quality improvement based on the Total Quality Process Model (Figure 1) developed by Berry (1990).

Figure 1. The Total Quality Process Model.



Source: Berry (1990)

As depicted in the Total Quality Process Model, the TQM process begins with management's acknowledgement of the need for quality improvement (Berry, 1990). Next in the process is the structuring for quality which consists of forming the quality council and management making the commitment to quality. At this point in the model, the customer feedback channel is initiated. As the model depicts, customer feedback is continuous throughout the process. This requires that the organization constantly employ a variety of methods to determine its customers' needs, adjust its approaches, and design its TQM improvements. The next major steps in the process are designing the quality process, establishing the culture blueprint, planning for quality, training for quality, enhancing the process, monitoring and measuring, and, last but not least, recognizing and celebrating the successes.

Dedicated to quality improvement, TAMC has been highly successful in the initial implementation of the TQM model. A Quality Improvement Council which directs, supports, and participates in the development and administration of the TQM process has been formally instituted. Process action teams have been implemented

and used effectively in problem-solving activities and projects. An across-the-board TQM training program has been instituted to train all TAMC personnel in the quality improvement philosophy and process. TAMC's most recent TQM initiative is its customer assessment program which was developed to identify quality issues for improvement based on customer feedback.

Since the purpose of any organization is to provide a product or service to its customers, the customer is the focus of total quality management and continuous improvement. TQM places special emphasis on the organization's preparation in identifying who their customers are and understanding their needs and expectations. According to Deming (1986), quality is whatever the customer needs and wants, and since the customer's requirements and tastes are always changing, the solution to defining quality in terms of the customer is to conduct customer research constantly. Therefore, it is essential that customer research be conducted at TAMC to assess where improvements may be made to better align its health care processes with the needs and expectations of its customers.

### **Statement of the Management Problem**

TQM challenges health care organizations to provide high-quality clinical care that meets or exceeds customer expectations. This requires the development of a reliable method for measuring the perceived quality of care and satisfaction from a patient's point of view (Steiber & Krowinski, 1990).

The current management problem is that a comprehensive, large-scale analysis of patient satisfaction has not been conducted at TAMC to measure the quality of care from the patient's perspective. This is necessary to determine what improvements can be made to better align the health care processes with the needs and expectations of the customer.

### **Literature Review**

TQM involves creating an organizational structure that uses customer feedback to improve the quality of its products and services. However, the concept of quality can vary greatly depending on who defines the term. The extent to which the organization fulfills the customer's needs, wants, and expectations establishes the quality of its products or services in the consumer's eyes and determines the degree to which the customer will be satisfied (Berger & Sudman, 1991).

Seeking customer satisfaction, therefore, clearly becomes a strategic goal for all organizations under TQM.

Satisfaction is a subjective perception of the customer who receives the product or service. By listening to the customer and examining internal operations, organizations are capable of revealing and focusing on the improvements that are needed (Berger & Sudman, 1991). To satisfy its customers, the organization must first determine who its customers are and then define quality in the terms of the customer.

#### The Health Care Customer

Most health care organizations applying the traditional definition of the term "customer" define customer as the "patient" (Labovitz, 1991). Under the TQM philosophy a "customer" is defined as anyone who receives the results of another person's work (Casarella, 1989). The customer relates not only to the consumers of the product or service external to the organization but also to its internal consumers.

The primary external customers of a hospital are the patients, third party payers, referring physicians, and society in general. The hospital's internal customers are the departments, services, and employees who depend on the specific processes or who receive

work from another element within the organization. While there are a myriad of internal and external customers within any health care organization, the consensus in the literature is that the internal chain of customers always leads to the "ultimate consumer" of health care -- the patient (Labovitz, 1991). Therefore, this study focused on the "patient" as the basis for measuring the needs, wants, and expectations of TAMC's customers to determine where improvements could be made.

#### Defining Quality

While quality care has always been the ultimate concern of health care organizations, most measurements of quality have typically focused on easily quantifiable parameters such as length of stay, mortality rates, surgical procedures rates, case-fatality rates, and infection rates (Walker & Restuccia, 1984). Consequently, commitment to quality health care for many hospitals has been left to a retrospective review by credentialing committees, risk management committees, and peer review. However, Donabedian (1980) maintains that "achieving and producing health and *satisfaction* (emphasis added) ... is the ultimate validator of the quality of care".

The major components of the quality of care are structure, process, and outcome (Donabedian, 1980). Lanning and O'Connor (1990) define quality of care from the patient's point of view as the patient's reaction to and perception of these components. Based on this approach, structure consists of the physical facilities and personnel of the health care organization. Process is the functional quality of how the health care was delivered, such as the tangibles, reliability, empathy, assurance, and responsiveness. Outcome relates to the individual health outcomes of the patient and the patient's perception of overall quality of the care received. Therefore, McMillan (1987) submits that strategies to evaluate the quality of care from a patient's prospective must be aimed at identifying and objectively measuring patient's perceptions and satisfaction with functions such as access to care, services, results, and interpersonal relationships.

#### The Determinants of Quality

With growing emphasis being placed on customer-based quality, several studies have been conducted to determine the most critical factors which influence patient satisfaction in regard to the structure, process and outcome aspects of health care. Several



studies have concluded that the most important determinant of patient satisfaction is the process component of health care as it relates to the human interaction between the patient and provider.

According to Press, Ganey, and Malone (1991), personal attention received, courtesy of the staff, and respect for privacy are some of the most important factors that influence satisfaction. In a nationwide survey of more than 73,000 patients from 124 hospitals, interpersonal issues were rated by patients to be more important than technical skills (Press, Ganey, & Malone, 1991). In this survey, items with a correlation coefficient of over .90 were staff sensitivity, staff concern for patient privacy, the time the physician spends with the patient, the overall cheerfulness of the hospital, and the nurses' attitude and attention to the personal and special needs of the patient.

In a survey of 737 patients, Lemke (1987) found nursing services to have the greatest impact on the patients' overall opinion of the quality of care and satisfaction with the hospital. Nursing service, housekeeping, food service, and admissions accounted for 79 percent of the variance in overall satisfaction with nursing service as the best predictor of patient

satisfaction and housekeeping as the second best predictor. The overall satisfaction with nursing service was most closely related to the supportive and personalized care by nursing personnel. The data concerning patient satisfaction with housekeeping services suggested that cleanliness of the floors and bathrooms had the greatest importance.

Cleary, Keroy, Karapanos, and McMullen (1989) concluded that satisfaction with physicians, nursing personnel, inpatient rooms, and food service accounted for over 80 percent of the variability in patient satisfaction in a survey of 598 medical, surgical, and obstetric patients. Some argue that patient satisfaction does not measure outcome and should be rejected as a measurement of hospital quality (Press, Ganey, & Malone, 1991). However, Cleary, Keroy, Karapanos, and McMullen (1989) found perceived health as an outcome measure to be a strong predictor of overall patient satisfaction for all types of patients surveyed.

While care received was also an important factor in a survey of 50 patients in an outpatient setting, Davis and Hobbs (1989) found that structural components had a major influence on patient satisfaction.

Structural factors such as insufficient signs and directions, inadequate parking facilities, crowded waiting rooms, and a lack of patient privacy due to structural deficiencies were found to be negatively related to patient satisfaction.

The results of these studies clearly indicate that patient satisfaction is a function of all the major components of the quality of care -- the structure, process, and outcome. While most frequently measured dimensions of patient satisfaction are the personal aspects of care, the structural and outcome components of the quality of care should not be overlooked.

#### Measuring Customer Satisfaction

McMillan (1987) cautions health care organizations that the lack of patient complaints does not necessarily equate to high levels of satisfaction. Many patients who are dissatisfied with their medical care rarely complain to the health care provider or to a third party. Therefore, methodologies used to assess patient satisfaction must be properly conducted to obtain objective, quantitative data that can be readily used to document and improve quality (Press, Ganey, & Malone, 1991).

The patient satisfaction survey is one of the primary means of assessing how patients feel about the quality of care they receive in a health care setting. The interest in patient satisfaction surveys has grown substantially due to their use as evaluation tools in identifying the problems and aspects of patient care most likely to negatively influence patient satisfaction (Cleary & McNeil, 1988). Lemke (1987) recommends patient surveys be administered routinely to establish baseline data which will allow an organization to focus on specific patient care and quality issues. A satisfaction survey's effectiveness, however, depends on several methodological and statistical issues such as the type of survey, development of the survey instrument, and data collection and sampling procedures.

#### Survey Types

The three basic types of surveys are the mail survey, telephone survey, and personal interview survey. Although each of these approaches has its own merits, each methodology also suffers from one or more shortcomings (Steiber & Krowinski, 1990).

The personal interview survey is labor intensive and relies on an in-person or face-to-face approach.

While personal interview surveys can ensure a good response rate and the convenience of faster survey process completion, they are confronted by a full array of personal and environmental factors that may influence the respondent and bias the response.

The telephone survey also provides a good response rate, if contact is made. However, it is also subject to biased responses due to the personal contact between the interviewer and respondent. Additionally, telephone surveys are labor intensive and usually require numerous attempts over a period of several days to make contact. Telephone surveys must also be conducted during evening hours or on weekends when the majority of the sampled population usually is at home.

The mail survey offers the most advantageous means of obtaining useful patient satisfaction information. Mail surveys provide a lower chance of bias, require lower personnel requirements to administer the survey, and can ensure complete patient confidentiality. In a study of survey methodologies, Walker and Restuccia (1984) examined the differences between telephone and mail surveys in terms of logistics of survey administration, response rates, costs incurred, representativeness of samples obtained, and the

potential for biased responses. The mail survey was found to be preferable over the telephone survey in terms of lower cost, lower chance of biased responses, and the assurance of confidentiality. The major drawbacks inherent to the mail survey are its lower response rate and the inability to control the time for survey completion. Research has shown, however, that relatively high response rates for mail surveys can be achieved through announcement letters and follow-up efforts (Walker & Restuccia, 1984; Nelson, Hays, Larson, & Batalden, 1989).

#### Survey Development

The overall objective of the patient satisfaction survey is to capture data that most accurately reflects the patient's perception of the care received. To properly identify and objectively measure the patient's perception of care, the survey must seek the dimensions of care that have the greatest potential to make a difference in the customer's opinion and overall satisfaction. The survey must also be constructed to effectively elicit an unbiased reaction and high response rate. Lastly, the survey must be a reliable and valid instrument by which to measure satisfaction (Nelson, Hays, Larson, & Batalden, 1989). Reliability

relates to the internal consistency of the instrument to obtain the same results if retested under similar conditions. Validity, on the other hand, refers to the instrument's ability or accuracy in measuring what it claims to measure (Soeken, 1985).

Ware (1981) asserts that to pass a test of content validity, a comprehensive patient satisfaction survey must include items representing all major dimensions of satisfaction as well as distinct subdimensions. Ware, Davies, and Stewart (1978) define the major dimensions of patient satisfaction as: art of care, technical quality, accessibility, efficacy, finances, physical environment, availability, and continuity. Ware (1981) further suggests that surveys that do not include all these dimensions of satisfaction or focus only on one dimension are of questionable reliability and validity unless additional items are included.

The overall goal in constructing a survey instrument is to develop a reliable and valid device to obtain information necessary to test research hypotheses. The instrument, however, will be useless if the intended respondents find it unacceptable. The basic tenants of good survey design are that the instrument be easy to understand, easy to answer, and

completed by the respondent in a relatively short period (Steiber & Krowinski, 1990). In addition to these basic tenants, self-completion instruments must be attractive, to the point, and as user friendly as possible. Steiber and Krowinski (1990) recommend that the length of time to complete a survey should not exceed 15 to 20 minutes, and the number of questions for a self-administered survey should range between 45 and 75 questions. A survey that is too short may not accomplish its intent because it lacks all the relevant questions. Conversely, a survey that is too long may irritate the respondent and lower the response rate or the number of questions answered.

The instrument must provide an appropriate response format that allows the researcher to control the variation in responses to perform multivariate analyses. However, the instrument must still offer respondents a chance to express their feelings about the aspect of care that they are being asked to evaluate. One of the more common scaling formats is the 5-point Likert (1932) scale which structures the choices a patient must use to rate a service from positive to negative. The 5-point Likert scale uses a semantic continuum which is readily translated into



numerical values (e.g., "strongly agree" to "agree" to "neutral" to "disagree" to "strongly disagree"; where "strongly disagree" equals 1, "disagree" equals 2, "neutral" equals 3, and so on). A more recently developed scoring system that uses "excellent", "very good", "good", "fair", and "poor" has shown to produce greater response variability and better predictions of behavioral responses than the traditional 5-point Likert scale (Ware & Hays, 1988). In contrast to questions that use a scaling system, open-ended questions allow respondents to answer structured questions in their own words. However, responses to open-ended questions vary considerably in length and detail. While the use of a standardized scaling system does not prohibit the use of open-ended questions, Steiber and Krowinski (1990) recommend that open-ended questions be kept to a minimum in quantitative surveys.

#### Data Collection

Equally important as the survey instrument itself is the time the data are collected and the sample of the population surveyed. Steiber and Krowinski (1990) advise against giving satisfaction questionnaires to patients as they leave the facility or administering the survey before the patient is discharged from the

hospital. Satisfaction surveys given to the patients as they are discharged generally yield a significantly low completion and return rate. They typically get mixed up with other papers, are misplaced, or are simply forgotten. Surveys completed while patients are still in the hospital may be extraordinarily favorable to the institution as patients tend to minimize their dissatisfaction while they still face their providers.

McMillan (1987) states that surveys completed shortly after treatment are most effective. The likelihood that the patient will report a general perception of health care rather than the specifics of the medical care encountered increases as the time between the treatment and the measurement of satisfaction increases.

In addition to determining the proper time to administer the survey, the population of patients to be surveyed must also be determined. Ideally, every customer or patient receiving the service should have an opportunity to offer feedback on the service received (Steiber & Krowinski, 1990), but large response bases are generally cost prohibitive. The question then becomes how much data is desirable verses how much is affordable.

Sampling theory has demonstrated that the same results can be obtained with a sample of the population provided that the sample is representative of the population (Steiber & Krowinski, 1990). While it may be assumed that large sample sizes are better than small, large samples do not inherently offer a more representative sample of the population. The selection of the sample must, therefore, be consistent with the purpose of the research effort and only large enough to ensure that the data obtained may be examined with statistical confidence.

Research has shown that patient satisfaction surveys can be a rich source of information for identifying potential areas for quality improvement in a health care setting. However, the survey development process and data collection procedures must be consistent with quantitative research theories and methodologies.

#### **Purpose of the Study**

The purpose of this study was to measure the level of patient satisfaction and determine the extent to which various aspects of the health care delivery system at TAMC contribute to overall patient satisfaction.

The objectives of this study were:

-- To develop and administer a questionnaire to obtain data regarding health care delivery at TAMC from the patient's perspective.

-- To identify those factors which have the greatest influence on the satisfaction of patients which may be used in the TQM process at TAMC to improve the quality of care.

-- To present patient satisfaction data in a usable form to the TAMC Command Group and Quality Improvement Council.

### METHODS AND PROCEDURES

Methodological approaches in the assessment of patient satisfaction are not yet standardized and the literature in the field is large and diffuse. Steiber and Krowinski (1990) divide patient satisfaction research into two general categories: qualitative and quantitative. Qualitative research uses an inductive approach to explore and understand the service as seen by the patient. Quantitative research, however, uses collected data to determine the degree to which one factor influences another and to assess the change as factors are modified. Since the purpose of this study was to measure the level of patient satisfaction and determine the extent to which various factors at TAMC contribute to patient satisfaction, this researcher employed a quantitative approach to measuring patient satisfaction.

#### Research Plan

My research plan for developing and conducting the patient satisfaction survey was to:

-- Develop a conceptual model of patient satisfaction.

- Determine the study population to be surveyed.
- Randomly draw a representative sample of the study population.
- Construct survey questions and develop the survey instrument.
- Submit the survey instrument to the TAMC Quality Council for review and approval.
- Finalize the survey instrument.
- Dispatch a letter of notification to the survey recipients to announce the survey instrument.
- Distribute the survey instrument to the survey recipients.
- Collect the data.
- Analyze the data.
- Present the findings.

Time management is a significant element in any research project involving a survey. While I selected a mail survey as the instrument for collecting data due to its advantages previously described, mail surveys often require a longer time for completion and return. Therefore, the major milestones I established for this study were:

November 1992 - Complete my research and Graduate Management Project Proposal (GMPP).

December 1992 - Develop a preliminary survey and submit the instrument to the Quality Council for review and approval.

January 1993 - Mail out letter of notification and survey instrument.

March 1993 - Collect the data.

April 1993 - Analyze the data and report findings.

May 1993 - Submit my completed Graduate Management Project (GMP).

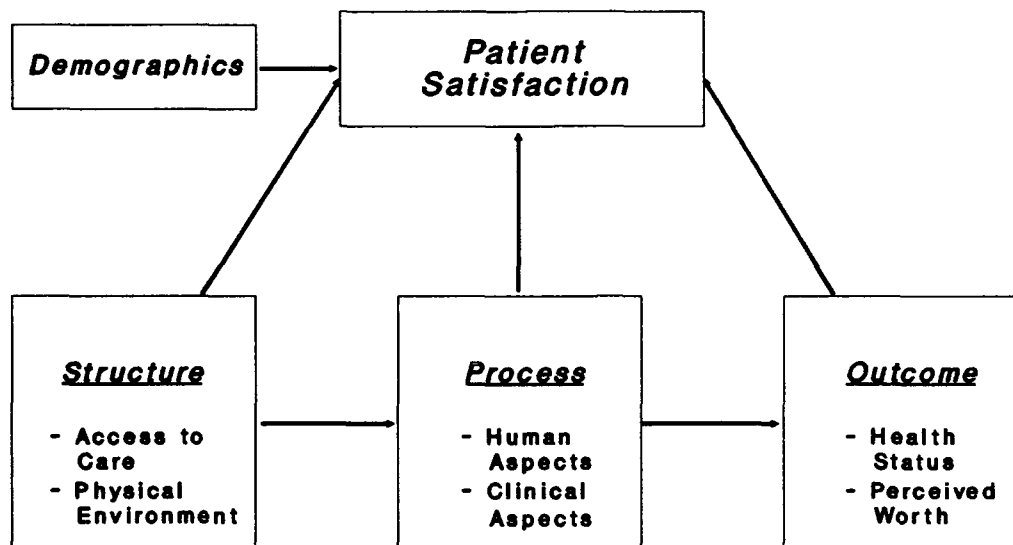
### Conceptual Model

Patient satisfaction is a multidimensional concept (Ware, 1981). Patient satisfaction and the measurement of quality have been largely conceptualized as a function of structure, process, and outcome (Donabedian, 1980). The conceptual model underlying this study is presented in Figure 2. The conceptual model is also the framework which guided the development of the survey instrument.

The major domains hypothesized to predict patient satisfaction are structure, process, and outcome. The structure domain consists of two dimensions: access to care and physical environment. Access to care is measured as it relates to such traits as waiting time for an appointment, waiting room time, flexibility of

clinic hours, and signs and directions. Physical environment is a measurement of the patient's perception of cleanliness, location of services, treatment area space and equipment, and privacy. The process domain consists of two major dimensions which relate to the quality of the care provided: the human dimension and the clinical dimension. The human dimension is assessed as a measurement of the interpersonal actions of the providers and staff such as concern, respect, interest, consideration, sympathy, and professionalism. The clinical dimension of care

Figure 2. Conceptual Model for Predicting Satisfaction.





measures the patient's perception of the skill, knowledge, competence, discretion, and thoroughness of the staff, and the appropriateness of services. Lastly, the outcome domain consists of a self assessment of health status and the patient's perception of the value or quality of the care received.

The model also includes the demographic variables of age, gender, marital status, racial background, health status, branch of military service, military rank, and beneficiary category. These variables were established to account for, control, and study their effects on patient satisfaction.

#### **Patients to be Assessed**

TAMC, as the only military hospital in Hawaii, supports over 228,000 local beneficiaries. This beneficiary population includes active duty military personnel from all branches of the service and their family members, retirees and their family members, family members of deceased service members, and the local veteran population. TAMC's referral population adds another 338,000 beneficiaries to the total population base, making TAMC's total supported population over 550,000 personnel.

TAMC conducts more than 3,000 outpatient clinic visits per day and discharges almost 2,000 inpatients per month.

The target population for this study included all patients who had visited TAMC on an outpatient basis during January 1993. This population was selected, as recommended by McMillan (1987) in previous research, to obtain a more specific perception of patient satisfaction with medical care as opposed to a more global or general perception of health care. A review of the hospital's records indicated that over 48,000 outpatients visited TAMC during January 1993. Given this target population, the sample size was established at 650 patients based on a confidence interval of .99 and a precision level of .05. Based on an expected return rate of 65 percent, it was estimated that 1,000 surveys needed to be sent out to achieve the required sample size of 650 for this study.

A random sample was drawn from the target population using individual social security numbers. All outpatients who had visited TAMC during January 1993 whose social security number ended in the number "3" were downloaded into a subfile. The subfile yielded over 6,000 outpatient visits. A review of the

subfile revealed that the file contained a number of patients who had visited TAMC on multiple occasions and a number of individual's whose family members had also sought medical care at TAMC during January 1993. The subfile also contained a number of tertiary referrals from the other Pacific islands, patients not residing on the island of Oahu, recently deceased beneficiaries, and civilian emergencies.

Based on a decision to send only one survey per household and only to those patients residing in the local area, the subfile was purged to eliminate multiple visits, multiple family members, tertiary referrals, patients not residing on the island of Oahu, deceased beneficiaries, and civilian emergencies. The resulting file contained approximately 1500 patients from which a random sample of 1000 patients was drawn. The Composite Health Care System (CHCS) was then used to obtain patient names and addresses.

#### Survey Development

An extensive review of the literature and prior methodological studies revealed a number of established survey instruments (Steiber & Krowinski, 1990; Nelson, Hays, Larson, & Batalden, 1989; Cleary, Keroy, Karapanos, & McMullen, 1989; Roberts & Tugwell, 1987).

However, none of these published survey instruments adequately supported my conceptual model for patient satisfaction.

Further research revealed a survey instrument developed by the United States Army Health Care Studies and Clinical Investigation Activity at Fort Sam Houston, Texas, which measured the dimensions of patient satisfaction most consistent with my literature review and conceptual model (Satisfaction with Medical Care Survey, Survey Control Number: PERI-AO-92-18, RCS: MILPC-3). The dimensions of patient satisfaction contained in the Satisfaction with Medical Care Survey were: Access to Care, Finances, Interpersonal Care, Communication, Choice and Continuity, Technical Quality, and Outcomes. The survey instrument was selected based on its comprehensiveness, and it appeared to provide primary data necessary for a broad based analysis of patient satisfaction. The survey instrument was also selected for use in this study based on its reported inter-item reliability of .7 to .9 and suggested face validity (A. D. Mangelsdorff, United States Army Health Care Studies and Clinical Investigation Activity, personal communications, October 12, 1992).

Revisions were made to the Satisfaction with Medical Care Survey to make the instrument more applicable to TAMC as well as taking the questionnaire length into account. One dimension of patient satisfaction was added to the instrument -- Physical Environment of Facility. This dimension was added to make it more consistent with the conceptual model. The resultant questionnaire was a ten page booklet containing 38 scaled items, nine utilization information questions, eight demographic questions, and three open-ended questions. The cover layout for the instrument was derived from the National Naval Medical Center Patient Satisfaction Survey, Bethesda, Maryland. Permission to use the questions contained in the Satisfaction with Medical Care Survey and to duplicate the cover layout of the Naval Medical Center Patient Satisfaction Survey was obtained from appropriate approval authorities (A. D. Mangelsdorff, personal communications, November 3, 1992; LCDR C. O. Benninger, National Naval Medical Center, personal communications, November 7, 1992). Prior to administering the survey, the instrument was reviewed and approved for use by the Commanding General, TAMC. The finalized survey instrument is presented at Appendix 1.

### Survey Contents

The completed survey instrument contained five global questions about overall patient satisfaction and 33 specific questions about the major dimensions of medical care. The specific attributes of satisfaction were measured for eight major dimensions: Access to Care, Physical Environment of Facility, Finances, Interpersonal Care, Communications, Choice and Continuity, Technical Quality, and Outcomes. Each item was rated for satisfaction on a 5-point scale with "5" being the highest positive rating possible. An additional response of "Have Not Used" was provided for respondents who had not utilized that service.

Five global items were used to evaluate the patient satisfaction criterion: (1) "Overall, how would you evaluate the health care at TAMC", (2) "I am very satisfied with the medical care I receive at TAMC", (3) "There are some things about the medical care I receive at TAMC that could be better", (4) The medical care I have been receiving at TAMC is just about perfect", and (5) "I am dissatisfied with some things about the medical care I receive at TAMC". The five global items were rated on a 5-point scale;

however, "1" represented the highest possible rating for the last four items.

The survey instrument collected demographic data on age, gender, racial background, marital status, health status military pay grade, beneficiary category, and branch of military service. Patient utilization data were also collected for length of time TAMC had been used for health care, wait time between making an appointment and day of visit, wait time to see the provider, frequency of seeing the same provider, number of admissions, number of outpatient visits, and clinics most frequently visited.

#### Survey Distribution

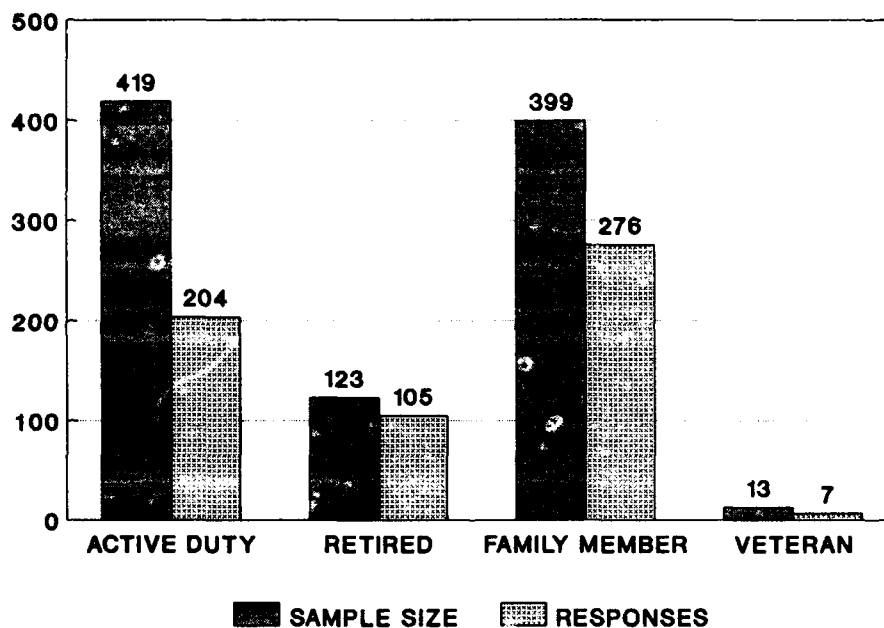
A letter of notification announcing the survey was mailed one week prior to the distribution of the survey instrument. All 1,000 survey recipients were mailed an individually addressed letter signed by the TAMC Commanding General stating the purpose of the study, indicating how long the survey would take to complete, urging the patients to complete the survey, and thanking the patients for their participation in the study. Average time to complete the survey was estimated at 15 minutes. One week later, all 1,000 survey recipients were mailed a packet containing the

Tripler Army Medical Center Patient Satisfaction Survey, instructions for the survey's return, and a prepaid business reply envelope. A follow-up letter was mailed to nonrespondents two weeks after the survey was distributed.

#### Return Rate

A total of 592 surveys were completed and returned and a total of 46 surveys were returned as undeliverable for a net response rate of 62 percent. As presented in Figure 3, responses by retirees showed the highest

**Figure 3. Return Rate by Beneficiary Category**





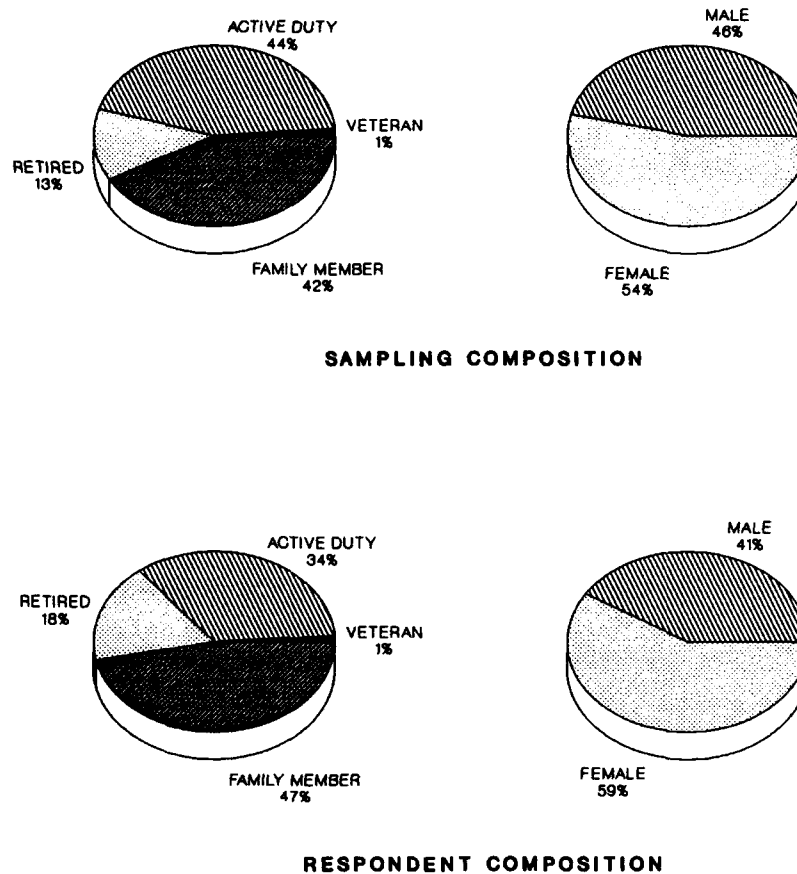
response rate. Of the 123 surveys distributed to retired personnel, 105 responded for a response rate of 85.37 percent. Family members which include family members of active duty, retirees, and deceased service members were the second highest response category with a response rate of 69.17 percent. Veterans Affairs beneficiaries were the third highest category with a response rate of 53.85 percent, followed by active duty at 48.69 percent.

A comparison of the sampling composition to the response composition is presented in Figure 4. The proportion of active duty responses was ten percent lower than the sampling composition. Retirees accounted for 18 percent of the responses, which was five percent higher than their sampling percentage. Family members also had a larger percentage of the respondent composition (47 percent) than their sampling composition (42 percent). The sample composition and respondent composition remained about one percent for the Veterans Affairs beneficiaries.

The proportion of male responses to female responses showed a greater response by females than males. The lower response rate by active duty and higher response rate by family members is partially

explained by the fact that several surveys that were sent to active duty military were completed and returned by family members. This occurrence accounted for over four percent of the decrease in male and active duty responses and the increase in the number of family member and female respondents.

**Figure 4. Comparison of Sampling and Respondent Compositions**



### Procedures

Of the 592 returned surveys, eighteen cases were deleted due to missing or insufficient data. The remaining 574 surveys were then used for statistical analyses. The patients' rights to privacy were protected by reporting and coding all data anonymously.

All continuous variables with "1" as the highest rating (e.g., survey questions #37, 38, 39, 40, and 48) were reflected so that the rating scale agreed with the remaining variables with "5" representing the highest response. The five dependent variables (e.g., survey questions #2, 37, 38, 39, and 40) were coded as continuous variables. Categorical questions were coded as mutually exclusive, categorically exhaustive (MECE) dichotomous variables. Gender was coded 1 for males and 0 for females. All other independent variables were coded as continuous variables. The final data file contained 163 variables.

### Statistical Methods

The reliability of the instrument was first assessed using Randomized Blocks Analysis of Variance (ANOVA). Variance components from the ANOVA test were used to calculate Cronbach's alpha (Cronbach, 1951). Cronbach's alpha reliability results are

considered to be stable or consistent at .6 or above; however, a reliability level of alpha was set at .8 for this study.

Descriptive statistics and frequency distributions were calculated to summarize the data. Pearson product-moment correlation coefficients were computed to determine the relationship between the dependent variables (the five global items used to assess the patient satisfaction criterion) and the items used to measure the eight dimensions of patient satisfaction (Access to Care, Physical Environment of Facility, Finances, Interpersonal Care, Communications, Choice and Continuity, Technical Quality, and Outcomes).

High inter-correlations among the item variables, referred to as multicollinearity, were restrained by collapsing item variables using principal components factor analysis to combine highly correlated variables to form single measures or factors (Stevens, 1992). Principal components factor analysis was also used to reduce the number of variables by identifying underlying constructs. The predictor variables were transformed into linear combinations by specifying no rotation to retain the maximum variance property of the resulting factor scores. Coefficients of 1.0 were used

in the diagonal of the correlation matrix since in components analysis the factors are specific linear combinations and no estimate is involved (Stevens, 1992). The unrotated factor score loadings were then rotated orthogonally using a Varimax rotation to enhance the interpretation of the resulting factors.

Lastly, stepwise regression analysis was used to determine the statistical significance of the individuals' factor scores in predicting satisfaction. Stepwise regression analysis is a form of multiple regression analysis that involves a partialling-out process that tests the contribution of a predictor variable while holding the effects of the other predictors constant (Kerlinger, 1986). Five stepwise regression equations were computed by regressing each criterion variable upon the factors. A probability level was set at .05.

## RESULTS

### Descriptive Statistics for Sample

Table 1 summarizes the demographic characteristics of the sample (n = 574) used in the statistical analyses. The respondents consisted of 232 males (40 percent) and 342 females (60 percent). Almost two-thirds of the sample were below the age of 40, and 20 percent were over the age of 60. Over 72 percent of the sample were white, while only 13 percent were black.

Approximately 87 percent of the sample were married. Seventy percent of the sample were active duty military personnel or family members of active duty personnel, and 25 percent of the respondents were retired personnel or their family members. Personnel in the Army (44 percent) were the largest group by branch of service in the sample, followed by the Navy at 30 percent and the Air Force at 14 percent. Respondents ranged in grade from E-1 to general officer with 69 percent enlisted personnel, 3 percent warrant officers, and approximately 28 percent commissioned officers. Lastly, almost 90 percent of the sample expressed their current health status as either "good", "very good", or "excellent".

TABLE 1. SAMPLE DEMOGRAPHIC CHARACTERISTICS (N = 574)

| Demographic Characteristic |                        | Number | Percentage |
|----------------------------|------------------------|--------|------------|
| Age:                       | <21 years              | 22     | 3.8        |
|                            | 21-29 years            | 174    | 30.3       |
|                            | 30-39 years            | 163    | 28.4       |
|                            | 40-49 years            | 67     | 11.7       |
|                            | 50-59 years            | 31     | 5.4        |
|                            | >60 years              | 117    | 20.4       |
| Gender:                    | Male                   | 232    | 40.4       |
|                            | Female                 | 342    | 59.6       |
| Racial Background:         | White                  | 411    | 72.6       |
|                            | Black                  | 71     | 12.5       |
|                            | Asian                  | 38     | 6.7        |
|                            | Pacific Islander       | 9      | 1.6        |
|                            | Indian/Aleut/Eskimo    | 9      | 1.6        |
|                            | Hispanic/Spanish       | 28     | 5.0        |
|                            | Unspecified            | 8      |            |
| Marital Status:            | Single                 | 23     | 4.0        |
|                            | Married                | 499    | 86.9       |
|                            | Separated              | 4      | .7         |
|                            | Divorced               | 27     | 4.7        |
|                            | Widowed                | 21     | 3.7        |
| Health Status:             | Excellent              | 122    | 21.3       |
|                            | Very Good              | 221    | 38.5       |
|                            | Good                   | 166    | 28.9       |
|                            | Fair                   | 48     | 8.4        |
|                            | Poor                   | 17     | 3.0        |
| Military Pay Grade:        | E1-E4                  | 100    | 17.7       |
|                            | E5-E6                  | 181    | 32.0       |
|                            | E7-E9                  | 109    | 19.3       |
|                            | W01-CW4                | 15     | 2.7        |
|                            | O1-O3                  | 46     | 8.1        |
|                            | O4-O5                  | 78     | 13.8       |
|                            | O6-O9                  | 36     | 6.4        |
|                            | Unspecified            | 9      |            |
| Branch of Service:         | Army                   | 250    | 44.1       |
|                            | Navy                   | 171    | 30.2       |
|                            | Air Force              | 79     | 13.9       |
|                            | Marine                 | 53     | 9.3        |
|                            | Coast Guard            | 14     | 2.5        |
|                            | Unspecified            | 7      |            |
| Beneficiary Category:      | Active Duty (AD)       | 198    | 34.5       |
|                            | Family Member of AD    | 211    | 36.8       |
|                            | Retired (Ret)          | 100    | 17.4       |
|                            | Family Member of Ret   | 44     | 7.7        |
|                            | Family Member of Dec   | 14     | 2.4        |
|                            | Veterans Affairs (VAB) | 7      | 1.2        |

Table 2 summarizes the utilization characteristics of the sample. Over 43 percent of the sample had utilized TAMC for more than three years. The respondent groups who had used TAMC for less than one year and from one to two years were approximately equal. In comparing the sources of health care, military treatment facilities (MTFs) provided over 90 percent of all the care sought by the respondents, and TAMC provided over 65 percent of that care. Sixty-three percent (361 of the 574 respondents) received the majority of their care at TAMC. The primary reasons for not receiving the majority of care at TAMC were: use of other MTFs (46 percent), too difficult to get an appointment (14 percent), live too far away (13 percent), and TAMC is not conveniently located (8 percent).

Seventy percent of the respondents indicated that they had no inpatient admissions, and only 18 percent reported one admission at TAMC during the past year. Almost 85 percent of the sample had multiple outpatient visits with 54 percent reporting more than four outpatient visits at TAMC during the past 12 months. Almost half of the respondents stated that they saw the same provider always or most of the time.



TABLE 2. SAMPLE UTILIZATION CHARACTERISTICS (N = 574)

| Utilization Characteristic         |                           | Number | Percentage |
|------------------------------------|---------------------------|--------|------------|
| Length of<br>Time Used:            | < 1 years                 | 154    | 26.8       |
|                                    | 1-2 years                 | 175    | 30.5       |
|                                    | > 3 years                 | 245    | 42.7       |
| Percent of<br>Care From:           | TAMC                      | ---    | 65.9       |
|                                    | Other MTFs                | ---    | 24.7       |
|                                    | CHAMPUS                   | ---    | 6.1        |
|                                    | Private Insurance         | ---    | 3.3        |
| Reason Majority<br>Not From TAMC:  | Lacks services            | 5      | 2.3        |
|                                    | Not conveniently located  | 16     | 7.5        |
|                                    | Not treated courteously   | 5      | 2.3        |
|                                    | Providers not thorough    | 1      | 0.5        |
|                                    | See different providers   | 11     | 5.2        |
|                                    | Schedule conflicts        | 6      | 2.8        |
|                                    | Appointment too difficult | 29     | 13.6       |
|                                    | Live too far away         | 28     | 13.1       |
|                                    | Wait time to be seen      | 15     | 7.0        |
|                                    | Use other MTFs            | 97     | 45.5       |
|                                    | N/A - Majority at TAMC    | 361    |            |
| Number of<br>Admissions:           | None                      | 397    | 70.3       |
|                                    | One                       | 103    | 18.2       |
|                                    | Two to four               | 44     | 7.8        |
|                                    | Five to nine              | 10     | 1.8        |
|                                    | Ten or more               | 11     | 2.0        |
|                                    | Unspecified               | 9      |            |
| Number of<br>Outpatient<br>Visits: | None                      | 41     | 7.2        |
|                                    | One                       | 45     | 8.0        |
|                                    | Two to four               | 174    | 30.7       |
|                                    | Five to nine              | 150    | 26.5       |
|                                    | Ten or more               | 156    | 27.6       |
|                                    | Unspecified               | 8      |            |
| Same<br>Provider:                  | Always                    | 96     | 17.1       |
|                                    | Most of the time          | 181    | 32.3       |
|                                    | Sometimes                 | 111    | 19.8       |
|                                    | Rarely                    | 107    | 19.1       |
|                                    | Never                     | 66     | 11.8       |
|                                    | Have not used             | 2      |            |
|                                    | Unspecified               | 11     |            |

TABLE 2 (CONTINUED). SAMPLE UTILIZATION CHARACTERISTICS (N = 574)

| Utilization Characteristic          |                         | Number | Percentage |
|-------------------------------------|-------------------------|--------|------------|
| Appointment<br>Wait Time:           | 2 days or less          | 45     | 8.3        |
|                                     | 3 days - 1 week         | 71     | 13.2       |
|                                     | 1 - 2 weeks             | 149    | 27.6       |
|                                     | 3 - 4 weeks             | 199    | 36.9       |
|                                     | 5 - 6 weeks             | 41     | 7.6        |
|                                     | > 6 weeks               | 34     | 6.3        |
|                                     | Have not used           | 23     |            |
|                                     | Unspecified             | 12     |            |
| Wait Time<br>to be Seen:            | < 10 minutes            | 40     | 7.3        |
|                                     | 10 - 15 minutes         | 133    | 24.3       |
|                                     | 16 - 30 minutes         | 190    | 34.7       |
|                                     | 31 - 45 minutes         | 115    | 21.0       |
|                                     | 46 - 60 minutes         | 39     | 7.1        |
|                                     | > 60 minutes            | 31     | 5.7        |
|                                     | Have not used           | 17     |            |
|                                     | Unspecified             | 9      |            |
| Clinics Most<br>Frequently<br>Used: | General Surgery         | 61     | 6.1        |
|                                     | Internal Medicine       | 127    | 12.6       |
|                                     | Pediatrics              | 116    | 11.5       |
|                                     | Obstetrics/Gynecology   | 221    | 22.0       |
|                                     | Orthopedics             | 98     | 9.7        |
|                                     | Mental Health Services  | 24     | 2.4        |
|                                     | Cardiology              | 38     | 3.8        |
|                                     | Ear, Nose, and Throat   | 86     | 8.6        |
|                                     | Optometry               | 41     | 4.1        |
|                                     | Allergy                 | 10     | 1.0        |
|                                     | Physical Therapy        | 14     | 1.4        |
|                                     | Neurology               | 16     | 1.6        |
|                                     | Pulmonary               | 9      | .9         |
|                                     | Dermatology             | 43     | 4.3        |
|                                     | Emergency Room          | 17     | 1.7        |
|                                     | Urology                 | 20     | 2.0        |
|                                     | Family Practice         | 22     | 2.2        |
|                                     | Medical Specialties     | 30     | 3.0        |
|                                     | Adult Outpatient Clinic | 13     | 1.3        |

The most frequently used clinics (respondents could make up to five responses) were Obstetrics/Gynecology (22 percent), Internal Medicine (13 percent), Pediatrics (12 percent), and Orthopedics (10 percent).

Approximately one-half of the respondents indicated that they had to wait no more than two weeks for a routine appointment, and the other half reported that they had to wait from three weeks to an excess of six weeks. The majority (64 percent) indicated that they had to wait from 1 to 4 weeks for a routine appointment. The majority of the respondents (80 percent) indicated that the normal wait time to be seen by a provider during a routine appointment was from 10 to 45 minutes. Twenty-four percent cited a waiting time of 10 to 15 minutes, 35 percent indicated a waiting time of 16 to 30 minutes, and 21 percent had to wait 31 to 45 minutes.

#### Instrument Reliability

Alpha coefficients were calculated to determine the internal consistency of the ratings on the survey items that measured the different aspects of the same dimension. The alpha estimates were exceptionally high for all dimensions and the coefficients met the criterion of .80 set for this study. Estimated alpha

coefficients were .91 for Access to Care, .80 for Physical Environment of Facility, .92 for Finances, .94 for Interpersonal Care, .88 for Communications, .93 for Choice and Continuity, .93 for Technical Quality, and .92 for Outcomes. The coefficient alpha index of reliability for the total questionnaire was .97.

#### Descriptive Statistics for Instrument

The mean satisfaction scores for the criterion and predictor variables<sup>1</sup> are presented in Table 3. Mean scores for the variables were generally favorable with a standard deviation of approximately  $\pm 1$  rating scale point. Mean scores for the criterion variables were 3.51 (between 3 = "Good" and 4 = "Very Good") for Overall Evaluation, 3.85 (between 3 = "Not Sure" and 4 = "Agree") for Overall Satisfaction, and 3.19 (between "Not Sure" and "Agree") for Medical Care is Just About Perfect. However, the mean score for the criterion variable Could be Better was 3.79 (between "Not Sure" and "Agree"), and 3.16 (between "Not Sure" and "Agree") for Dissatisfied with Some Things.

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<sup>1</sup> Throughout the remainder of this study, items used to assess patient satisfaction are referred to as criterion variables, and items used to measure the dimensions of patient satisfaction are referred to as predictor variables.

TABLE 3. DESCRIPTIVE DATA FOR CRITERION AND PREDICTOR VARIABLES (N = 574)

| Variable                            | Mean (a) | Std. Dev. |
|-------------------------------------|----------|-----------|
| Overall Evaluation of TMC           | 3.51     | 1.02      |
| Overall Satisfaction of Care        | 3.85     | 1.06      |
| Things Could Be Better              | 3.79     | 1.09      |
| Medical Care is Just About Perfect  | 3.19     | 1.20      |
| Dissatisfied with Some Things       | 3.16     | 1.33      |
| ACCESS TO CARE:                     |          |           |
| Convenience of Location             | 3.62     | 1.74      |
| Hours of Operation                  | 3.69     | 1.03      |
| Access to Specialty Care            | 3.46     | 1.29      |
| Access to Hospital Care             | 3.80     | 1.07      |
| Access to Emergency Care            | 3.67     | 1.29      |
| Making Appointments by Phone        | 2.54     | 1.32      |
| Wait Time at Office                 | 2.89     | 1.20      |
| Wait Time for Appointment Visit     | 2.77     | 1.19      |
| Medical Information by Phone        | 2.88     | 1.34      |
| Access to Medical Care              | 3.37     | 1.19      |
| PHYSICAL ENVIRONMENT OF FACILITY:   |          |           |
| Overall Cleanliness                 | 4.34     | .80       |
| Location of Services and Clinics    | 3.95     | .90       |
| Waiting and Treatment Areas         | 3.91     | .98       |
| FINANCES:                           |          |           |
| Protection Against Medical Expenses | 4.20     | 1.01      |
| Care Without Financial Problems     | 4.20     | 1.01      |
| INTERPERSONAL CARE:                 |          |           |
| Doctors and Medical Staff           | 3.97     | 1.13      |
| Administrative Staff/Receptionists  | 3.68     | 1.20      |
| Personal Interest Shown             | 3.64     | 1.20      |
| Respect and Privacy                 | 3.81     | 1.15      |
| Reassurance and Support             | 3.76     | 1.19      |
| Amount of Time During Visit         | 3.50     | 1.23      |
| COMMUNICATIONS:                     |          |           |
| Explanations of Procedures          | 3.76     | 1.15      |
| Advice to Stay Healthy              | 3.58     | 1.17      |
| Attention to What You Say           | 3.52     | 1.19      |
| CHOICE AND CONTINUITY:              |          |           |
| Doctors to Choose From              | 3.14     | 1.32      |
| Seeing Doctor of Your Choice        | 2.94     | 1.43      |
| Choosing a Personal Doctor          | 2.68     | 1.49      |
| TECHNICAL QUALITY:                  |          |           |
| Examination and Diagnosis           | 3.63     | 1.16      |
| Skill - Doctors                     | 3.79     | 1.07      |
| Skill - Other Staff Members         | 3.60     | 1.06      |
| Thoroughness of Treatment           | 3.70     | 1.10      |
| OUTCOMES:                           |          |           |
| Outcome - How Much You Are Helped   | 3.75     | 1.11      |
| Overall Quality of Care Received    | 3.77     | 1.06      |

(a) All variables are coded on a 5-point scale with "5" being the highest rating.

Scores for the predictor variables ranged from 2.54 (between 2 = "Fair" and 3 = "Good") to 4.20 (between 4 = "Very Good" and 5 = "Excellent"). The highest mean scores were in the dimensions of Physical Environment of Facility, Finances, and Interpersonal Care. The lowest scores were in Access to Care and Choice and Continuity.

In the dimension of Physical Environment of Facility, Overall Cleanliness received the highest overall rating for the predictor variables (4.34). The Location of Services and Clinics and Waiting and Treatment Areas also received high ratings of 3.95 and 3.91, respectively. The closeness of the standard deviations for these items (standard deviation of less than  $\pm 1$  rating scale point) indicate a general agreement in the ratings for these predictor variables. Finances received high ratings of 4.20 for both Protection Against Medical Expenses and Care Without Financial Problems. The highest rating in the Interpersonal Care dimension was obtained by the Doctors and Medical Staff with a mean score of 3.97.

Access to Care received the lowest ratings in the areas of Making Appointments by Phone (2.54), Wait Time for Appointment Visit (2.77),

Medical Information by Phone (2.88), and Wait Time at the Office (2.89). The standard deviations for these items ranged from  $\pm 1.19$  to  $\pm 1.34$  rating scale point. The lowest ratings in the Choice and Continuity dimension were Choosing a Personal Doctor with a mean score of 2.68, and Seeing a Doctor of Your Choice with 2.94. The standard deviations for these two items were  $\pm 1.49$  and  $\pm 1.43$ , respectively.

#### Frequency Distributions

Frequency distributions were computed for all criterion and predictor variables. Frequency distribution tables and histograms for each criterion variable are presented in Appendix 2, Table 4-1. Frequency distribution tables and histograms for the predictor variables are presented in Appendix 2, Tables 4-2 through 4-9. In computing the frequency distributions, cases where respondents left the item blank ("Unspecified") or indicated that they had not used the particular service ("Have Not Used") were omitted from the histograms and the computation of the valid percentages. While "Unspecified" cases were relatively few, a considerable number of respondents selected the 6 = "Have Not Used" response category on some survey items. These survey items

included: Access to Specialty Care, Access to Hospital Care, Access to Emergency Care, Medical Information by Phone, Protection Against Medical Expenses, Care Without Financial Problems, Doctors to Choose From, Seeing Doctor of Your Choice, and Choosing a Personal Doctor. A summary of the criterion and predictor variables response category frequencies by valid percentage are presented in Table 4.

For the criterion variable Overall Evaluation, the majority of the respondents (66 percent) rated TAMC as good ("3") or very good ("4") on the 5-point rating scale. Seventeen percent of the respondents rated their Overall Evaluation of TAMC as excellent ("5"), and 17 percent rated TAMC as less than good ("2" or "1").

When asked if they were satisfied with the medical care they received at TAMC (Overall Satisfaction), 46 percent indicated they "agreed", and 29 percent "strongly agreed" with the question. Conversely, 41 percent "agreed" and 29 percent "strongly agreed" that there are some things about the medical care they receive at TAMC that could be better (Things Could Be Better). When asked how perfect was the medical care they receive (Medical Care is Just About Perfect),



TABLE 4. CRITERION AND PREDICTOR VARIABLES RESPONSE CATEGORY PERCENTAGES

| Corresponding Survey Question<br>Number and Survey Item (a) | Rating Scale (b) |     |     |     |     |
|---|------------------|-----|-----|-----|-----|
|   | "1"              | "2" | "3" | "4" | "5" |
| CRITERION ITEMS:  |                  |     |     |     |     |
| 2. Overall Evaluation of TAMC                               | 2%               | 15% | 30% | 36% | 17% |
| 37. Overall Satisfaction with Care (c)                      | 4                | 11  | 11  | 46  | 29  |
| 38. Things Could Be Better (c)                              | 4                | 11  | 15  | 41  | 29  |
| 39. Medical Care is Just About Perfect (c)                  | 7                | 24  | 21  | 33  | 14  |
| 40. Dissatisfied with Some Things (c)                       | 12               | 27  | 10  | 33  | 18  |
| ACCESS TO CARE:   |                  |     |     |     |     |
| 4. Convenience of Location                                  | 5%               | 14% | 25% | 27% | 29% |
| 5. Hours of Operation                                       | 2                | 10  | 29  | 33  | 26  |
| 6. Access to Specialty Care                                 | 10               | 15  | 21  | 28  | 26  |
| 7. Access to Hospital Care                                  | 3                | 9   | 25  | 32  | 32  |
| 8. Access to Emergency Care                                 | 8                | 13  | 18  | 26  | 35  |
| 9. Making Appointments by Phone                             | 29               | 23  | 21  | 16  | 10  |
| 10. Wait Time at Office                                     | 14               | 24  | 30  | 21  | 11  |
| 11. Wait Time for Appointment Visit                         | 17               | 27  | 29  | 19  | 9   |
| 12. Medical Information by Phone                            | 21               | 20  | 24  | 21  | 14  |
| 13. Access to Medical Care                                  | 6                | 19  | 28  | 26  | 21  |
| PHYSICAL ENVIRONMENT OF FACILITY:                           |                  |     |     |     |     |
| 14. Overall Cleanliness                                     | 0%               | 3%  | 11% | 35% | 51% |
| 15. Location of Services and Clinics                        | 1                | 4   | 26  | 38  | 31  |
| 16. Waiting and Treatment Areas                             | 1                | 8   | 21  | 38  | 32  |
| FINANCES:   |                  |     |     |     |     |
| 17. Protection Against Medical Expenses                     | 3%               | 4%  | 13% | 31% | 49% |
| 18. Care Without Financial Problems                         | 3                | 5   | 11  | 32  | 50  |
| INTERPERSONAL CARE:   |                  |     |     |     |     |
| 19. Doctors and Medical Staff                               | 4%               | 9%  | 16% | 30% | 42% |
| 20. Administrative Staff/Receptionists                      | 7                | 10  | 22  | 30  | 31  |
| 21. Personal Interest Shown                                 | 6                | 14  | 21  | 31  | 29  |
| 22. Respect Privacy   | 5                | 10  | 20  | 31  | 35  |
| 23. Reassurance and Support                                 | 6                | 10  | 20  | 29  | 34  |
| 24. Amount of Time During Visit                             | 8                | 14  | 25  | 29  | 25  |
| COMMUNICATIONS:   |                  |     |     |     |     |
| 25. Explanations of Procedures                              | 5%               | 10% | 21% | 32% | 32% |
| 26. Advice to Stay Healthy                                  | 7                | 11  | 26  | 32  | 25  |
| 27. Attention to What You Say                               | 6                | 15  | 24  | 31  | 24  |

TABLE 4 (CONTINUED). CRITERION AND PREDICTOR VARIABLES RESPONSE CATEGORY PERCENTAGES

| Corresponding Survey Question<br>Number and Survey Item (a) | Rating Scale (b) |     |     |     |     |
|---|------------------|-----|-----|-----|-----|
|   | "1"              | "2" | "3" | "4" | "5" |
| CHOICE AND CONTINUITY:                                      |                  |     |     |     |     |
| 28. Doctors to Choose From                                  | 15%              | 17% | 26% | 24% | 18% |
| 29. Seeing Doctor of Your Choice                            | 22               | 20  | 17  | 23  | 18  |
| 30. Choosing a Personal Doctor                              | 33               | 17  | 13  | 22  | 15  |
| TECHNICAL QUALITY:  |                  |     |     |     |     |
| 31. Examination and Diagnosis                               | 6%               | 11% | 25% | 31% | 27% |
| 32. Skill - Doctors   | 3                | 10  | 23  | 33  | 31  |
| 33. Skill - Other Staff Members                             | 3                | 13  | 27  | 35  | 22  |
| 34. Thoroughness of Treatment                               | 3                | 13  | 24  | 33  | 28  |
| OUTCOMES:   |                  |     |     |     |     |
| 35. Outcome - How Much You Are Helped                       | 3%               | 12% | 22% | 32% | 31% |
| 36. Overall Quality of Care Received                        | 2                | 12  | 23  | 34  | 30  |

(a) Survey items contained in this table are an abbreviated form of the questions contained in the Patient Satisfaction Survey. Please refer to survey instrument for complete question.

(b) Rating scale for questions 2 and 4-36: 1 = Poor; 2 = Fair; 3 = Good; 4 = Very Good; 5 = Excellent. Rating scale for questions 37-40: 1 = Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Agree; 5 = Strongly Agree.

(c) Survey questions 37, 38, 39, and 40 were reflected during data analysis so that 5 represented the highest response possible.

47 percent of the respondents either "agreed" or "strongly agreed", while only 31 percent "disagreed" or "strongly disagreed" with the question. In response to the last criterion item, 51 percent "agreed" or "strongly agreed" that they were dissatisfied with some things about the care they received at TAMC (Dissatisfied with Some Things), and 39 percent "disagreed" or "strongly disagreed" with the question.

While most frequency distributions were positively skewed, the response to Survey Question #9, "Arrangements for making appointments for medical care by phone", was negatively skewed with 29 percent rating this item as a "1" (poor), 23 percent as "2" (fair), 21 percent as "3" (good), and only 26 percent rating this item as "4" (very good) or "5" (excellent). Question #12, "Availability of medical information or advice by phone", resulted in a flat or platykurtic distribution with similar responses in response categories "1" through "4". Questions #10, "Length of time you wait at the office to see the doctor", and #11, "Length of time you wait between making an appointment for routine care and the day of your visit", also received the majority of their ratings in the lower response categories.

The other dimension receiving the lowest ratings was Choice and Continuity. Thirty-two percent of the respondents rated Doctors to Choose From as "fair" or "poor", 42 percent rated Seeing the Doctor of Your Choice as "fair" or "poor", and 50 percent rated Choosing a Personal Doctor as "fair" or "poor".

In the Interpersonal Care dimension, Doctors and Medical Staff received the highest ratings for friendliness and courtesy with 72 percent of the respondents rating this item as "very good" or "excellent". However, only 61 percent of the respondents rated the friendliness and courtesy of the Administrative Staff and Receptionists as "very good" or "excellent".

#### Open Ended Questions

Responses to the open-ended questions ("What two things do you like the most about TAMC?", "What two things might we improve at TAMC?", and "Any additional comments you would like to make?") yielded a large response with over 400 respondents providing some form of reply to these questions. Responses to the first two questions were coded and separated into categories which best represented the response. Table 5 contains the coded categories and frequency

of responses to the first two questions. Responses to the third open-ended question were transcribed in narrative form and are not presented in this study.

In response to "What two things do you like the most about TAMC?", 17 percent of the responses to this question complemented the professionalism and concern of the staff. Fourteen percent of the responses referred to the quality of the medical care, 10 percent to the location of TAMC, 10 percent to the friendliness and courtesy of the staff, 8 percent to the cleanliness of the facility, and 7 percent to the number of services and specialties provided.

In response to "What two things might we improve at TAMC?", the most common response (17 percent) expressed frustration with the patient appointment system. Attitudes of staff (receptionists, physicians, and nursing staff) received the next highest response rate (11 percent). The other major categories receiving the most responses to this question were waiting time for appointments, parking, waiting time to be seen by the provider, continuity of care, and the pharmacy system. Four percent of the respondents indicated that an increase in the staffing at TAMC was needed to improve the quality of care.

TABLE 5. FREQUENCY OF CATEGORICAL RESPONSES TO OPEN-ENDED QUESTIONS

| Things Liked Most About TAMC                    | Frequency of Response | Percent of Total |
|---|-----------------------|------------------|
| 1. Professionalism and Concern of Medical Staff | 166                   | 20.8%            |
| 2. Quality of Medical Care                      | 110                   | 13.8             |
| 3. Convenience of Location                      | 80                    | 10.0             |
| 4. Friendliness and Courtesy of Staff           | 78                    | 9.8              |
| 5. Cleanliness of Facility                      | 66                    | 8.3              |
| 6. Number of Specialties and Services           | 55                    | 6.9              |
| 7. Atmosphere and Appearance of Facility        | 34                    | 4.3              |
| 8. No Cost for Care                             | 28                    | 3.5              |
| 9. Pharmacy Services                            | 27                    | 3.4              |
| 10. Pediatric Clinics and Inpatient Services    | 23                    | 2.9              |
| 11. Accessibility to Medical Care               | 20                    | 2.5              |
| 12. Family Practice Clinic                      | 18                    | 2.3              |
| 13. State of the Art Technology                 | 17                    | 2.1              |
| 14. Labor and Delivery Care                     | 16                    | 2.0              |
| 15. Treatment and Services for Retirees         | 14                    | 1.8              |
| 16. CHCS Computerized Ordering System           | 12                    | 1.5              |
| 17. Continuity of Care                          | 11                    | 1.4              |
| 18. Other Responses                             | 25                    | 3.1              |

| Things That Might Be Improved          | Frequency of Response | Percent of Total |
|--|-----------------------|------------------|
| 1. Making Appointments by Phone        | 132                   | 17.2%            |
| 2. Friendliness and Courtesy of Staff  | 88                    | 11.5             |
| 3. Waiting Time for an Appointment     | 76                    | 9.9              |
| 4. Parking                             | 54                    | 7.0              |
| 5. Waiting Time to be Seen by Provider | 48                    | 6.3              |
| 6. Continuity of Care                  | 36                    | 4.7              |
| 7. Pharmacy Services                   | 36                    | 4.7              |
| 8. Increased Staffing                  | 32                    | 4.2              |
| 9. Quality of Medical Care             | 23                    | 3.0              |
| 10. Communications                     | 22                    | 2.9              |
| 11. Amount of Time During a Visit      | 22                    | 2.9              |
| 12. Emergency Room and Wait Time       | 22                    | 2.9              |
| 13. Obstetrics/Gynecology Services     | 19                    | 2.5              |
| 14. Overall Telephone System           | 17                    | 2.2              |
| 15. Follow-up After Diagnosis          | 16                    | 2.1              |
| 16. Directional Signs in Facility      | 14                    | 1.8              |
| 17. Customer Service                   | 13                    | 1.7              |
| 18. Hours of Operation                 | 11                    | 1.4              |
| 19. More Prompt Attention              | 10                    | 1.3              |
| 20. Food Service                       | 10                    | 1.3              |
| 21. Other Responses                    | 67                    | 8.7              |

For the most part, the respondents utilized the last open-ended question, "Any additional comments you would like to make?", to complement individual staff members, expressed their appreciation for services received, applauded TAMC in attempting to improve the quality of care, and expressed their appreciation for being included in this quality improvement initiative. However, approximately 25 percent of the responses expressed concern with the friendliness and courtesy of some of the staff members, the quality of the care received, or difficulties in accessing the system.

#### Correlation Coefficients

Pearson product-moment correlation coefficients for relationships between the criterion variables and the predictor variables are presented in Table 6. Results from the correlation matrix revealed that the items used to measure the different dimensions of patient satisfaction were significantly correlated with the criterion variables. All correlations were significant at the  $p < .001$  level.

Moderately-high to high correlations ranging from  $r = .30$  to  $.75$  were obtained between the predictor variables and Overall Evaluation, from  $r = .26$  to  $.74$

TABLE 6. CORRELATION BETWEEN CRITERION VARIABLES AND PREDICTOR VARIABLES

| Variables (a)               | Criterion Variables   |                         |                    |                            |                                  |
|-----------------------------|-----------------------|-------------------------|--------------------|----------------------------|----------------------------------|
|                             | Overall<br>Evaluation | Overall<br>Satisfaction | Could Be<br>Better | Medical Care<br>Is Perfect | Dissatisfied<br>with Some Things |
| Access to Care:             |                       |                         |                    |                            |                                  |
| Convenience of location     | .33                   | .26                     | -.18               | .25                        | -.19                             |
| Hours of operation          | .48                   | .37                     | -.31               | .41                        | -.29                             |
| Specialty care              | .58                   | .57                     | -.43               | .54                        | -.45                             |
| Hospital care               | .60                   | .57                     | -.35               | .53                        | -.37                             |
| Emergency care              | .54                   | .50                     | -.34               | .50                        | -.42                             |
| Appointments by phone       | .45                   | .39                     | -.32               | .44                        | -.34                             |
| Wait time at office         | .51                   | .43                     | -.40               | .49                        | -.42                             |
| Wait time for appointment   | .48                   | .46                     | -.38               | .46                        | -.40                             |
| Information by phone        | .53                   | .48                     | -.41               | .55                        | -.46                             |
| Medical care                | .64                   | .56                     | -.41               | .57                        | -.45                             |
| Physical Environment:       |                       |                         |                    |                            |                                  |
| Overall cleanliness         | .34                   | .36                     | -.21               | .31                        | -.21                             |
| Location of services        | .41                   | .43                     | -.27               | .41                        | -.30                             |
| Waiting/treatment areas     | .43                   | .47                     | -.25               | .43                        | -.27                             |
| Finances:                   |                       |                         |                    |                            |                                  |
| Protection against expenses | .30                   | .31                     | -.17               | .27                        | -.14                             |
| Care w/o financial problems | .35                   | .35                     | -.20               | .32                        | -.16                             |
| Interpersonal Care:         |                       |                         |                    |                            |                                  |
| Doctors and medical staff   | .62                   | .61                     | -.39               | .59                        | -.49                             |
| Admin Staff/Receptionists   | .53                   | .49                     | -.35               | .54                        | -.39                             |
| Personal interest shown     | .68                   | .65                     | -.44               | .67                        | -.51                             |
| Respect and privacy         | .62                   | .62                     | -.41               | .63                        | -.47                             |
| Reassurance and support     | .68                   | .67                     | -.44               | .66                        | -.51                             |
| Time during visit           | .62                   | .59                     | -.43               | .63                        | -.47                             |
| Communications:             |                       |                         |                    |                            |                                  |
| Explanation of procedures   | .60                   | .60                     | -.39               | .60                        | -.45                             |
| Advice to stay healthy      | .57                   | .56                     | -.39               | .61                        | -.49                             |
| Attention to what you say   | .62                   | .61                     | -.44               | .65                        | -.54                             |



TABLE 6 (CONTINUED). CORRELATION BETWEEN CRITERION VARIABLES AND PREDICTOR VARIABLES

| Variables (a)              | Criterion Variables   |                         |                    |                            |                                  |
|----------------------------|-----------------------|-------------------------|--------------------|----------------------------|----------------------------------|
|                            | Overall<br>Evaluation | Overall<br>Satisfaction | Could Be<br>Better | Medical Care<br>is Perfect | Dissatisfied<br>with Some Things |
| Choice and Continuity:     |                       |                         |                    |                            |                                  |
| Doctors to choose from     | .60                   | .57                     | -.44               | .59                        | -.44                             |
| Seeing doctor of choice    | .65                   | .59                     | -.44               | .64                        | -.49                             |
| Choosing a personal doctor | .61                   | .57                     | -.45               | .64                        | -.47                             |
| Technical Quality:         |                       |                         |                    |                            |                                  |
| Examination and diagnosis  | .64                   | .61                     | -.41               | .59                        | -.48                             |
| Skill - doctors            | .63                   | .62                     | -.37               | .58                        | -.42                             |
| Skill - other staff        | .61                   | .61                     | -.38               | .61                        | -.47                             |
| Thoroughness of treatment  | .71                   | .72                     | -.44               | .68                        | -.51                             |
| Outcomes:                  |                       |                         |                    |                            |                                  |
| How much you are helped    | .67                   | .69                     | -.40               | .63                        | -.49                             |
| Overall quality of care    | .75                   | .74                     | -.47               | .70                        | -.54                             |

(a) All correlations are significant at the  $p < .001$  level, two-tailed test.

between the predictor variables and Overall Satisfaction, and from  $r = .25$  to  $.70$  between the predictor variables and Medical Care is Just About Perfect. Predictor variables were found to be significantly but negatively correlated with Some Things Could be Better and Dissatisfied With Some Things with ranges of  $r = -.17$  to  $-.47$  and  $r = -.14$  to  $-.54$ , respectively.

Overall Evaluation was most highly correlated with Overall Quality of Care ( $r = .75$ ), and Thoroughness of Treatment ( $r = .71$ ). Overall Satisfaction was also most highly correlated with Overall Quality of Care ( $r = .74$ ), and Thoroughness of Treatment ( $r = .72$ ). Things Could be Better was most highly correlated with Overall Quality of Care ( $r = -.47$ ), and Choosing a Personal Doctor ( $r = -.45$ ). Dissatisfied With Some Things was most highly correlated with Overall Quality of Care ( $r = -.54$ ), and Attention Given to What You Say ( $r = -.54$ ).

#### Inter-Item Correlations

Moderately high to high inter-item correlations were found among the predictor variables (Table 7). All inter-item correlations were significant at  $p < .001$ . The highest inter-item correlations were

TABLE 7. INTER-ITEM CORRELATIONS FOR PREDICTOR VARIABLES

| Variables (a)                   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
|---------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1. Convenience of location      | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2. Hours of operation           | .53  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3. Specialty care               | .31  | .52  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4. Hospital care                | .45  | .60  | .78  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |
| 5. Emergency care               | .36  | .49  | .55  | .66  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |
| 6. Appointments by phone        | .25  | .42  | .43  | .47  | .35  | 1.00 |      |      |      |      |      |      |      |      |      |      |
| 7. Wait time at office          | .30  | .44  | .46  | .46  | .42  | .52  | 1.00 |      |      |      |      |      |      |      |      |      |
| 8. Wait time for appointment    | .27  | .40  | .51  | .51  | .37  | .57  | .58  | 1.00 |      |      |      |      |      |      |      |      |
| 9. Information by phone         | .30  | .42  | .53  | .50  | .43  | .53  | .51  | .59  | 1.00 |      |      |      |      |      |      |      |
| 10. Medical care                | .35  | .49  | .66  | .66  | .59  | .48  | .55  | .58  | .65  | 1.00 |      |      |      |      |      |      |
| 11. Overall cleanliness         | .19  | .36  | .33  | .38  | .27  | .29  | .31  | .33  | .33  | .33  | 1.00 |      |      |      |      |      |
| 12. Location of services        | .35  | .44  | .37  | .51  | .35  | .35  | .41  | .39  | .42  | .44  | .54  | 1.00 |      |      |      |      |
| 13. Waiting/treatment areas     | .28  | .40  | .37  | .46  | .37  | .36  | .46  | .37  | .39  | .42  | .57  | .62  | 1.00 |      |      |      |
| 14. Protection against expenses | .19  | .24  | .39  | .42  | .32  | .18  | .21  | .26  | .22  | .35  | .31  | .34  | .34  | 1.00 |      |      |
| 15. Care w/o financial problems | .19  | .25  | .38  | .41  | .29  | .17  | .19  | .28  | .29  | .37  | .32  | .41  | .37  | .85  | 1.00 |      |
| 16. Doctors and medical staff   | .23  | .38  | .45  | .46  | .47  | .32  | .43  | .38  | .46  | .49  | .37  | .40  | .46  | .29  | .32  | 1.00 |
| 17. Admin staff/receptionists   | .29  | .45  | .41  | .47  | .38  | .45  | .49  | .40  | .51  | .49  | .35  | .40  | .48  | .25  | .28  | .62  |
| 18. Personal interest shown     | .25  | .41  | .51  | .52  | .53  | .43  | .50  | .48  | .57  | .60  | .39  | .44  | .49  | .33  | .36  | .76  |
| 19. Respect and privacy         | .24  | .39  | .46  | .50  | .46  | .39  | .47  | .43  | .54  | .55  | .39  | .46  | .51  | .30  | .34  | .73  |
| 20. Reassurance and support     | .23  | .40  | .54  | .53  | .51  | .39  | .45  | .44  | .55  | .60  | .38  | .41  | .49  | .34  | .38  | .74  |
| 21. Time during visit           | .23  | .44  | .51  | .50  | .48  | .43  | .51  | .48  | .55  | .56  | .37  | .42  | .49  | .28  | .30  | .66  |
| 22. Explanation of procedures   | .21  | .40  | .53  | .52  | .44  | .38  | .43  | .43  | .54  | .52  | .37  | .44  | .48  | .33  | .35  | .63  |
| 23. Advice to stay healthy      | .23  | .39  | .48  | .50  | .46  | .38  | .50  | .44  | .57  | .52  | .36  | .44  | .49  | .23  | .25  | .57  |
| 24. Attention to what you say   | .21  | .36  | .52  | .50  | .47  | .37  | .46  | .47  | .57  | .52  | .32  | .39  | .42  | .27  | .28  | .64  |
| 25. Doctors to choose from      | .23  | .37  | .55  | .52  | .44  | .38  | .48  | .48  | .53  | .58  | .30  | .40  | .39  | .38  | .38  | .46  |
| 26. Seeing doctor of choice     | .25  | .40  | .56  | .54  | .44  | .51  | .52  | .53  | .61  | .61  | .33  | .43  | .42  | .33  | .36  | .54  |
| 27. Choosing a personal doctor  | .27  | .34  | .59  | .54  | .41  | .49  | .50  | .51  | .63  | .61  | .28  | .40  | .38  | .32  | .32  | .52  |
| 28. Examination and diagnosis   | .19  | .36  | .49  | .47  | .47  | .36  | .43  | .45  | .52  | .52  | .36  | .42  | .46  | .35  | .35  | .63  |
| 29. Skill - doctors             | .22  | .41  | .53  | .50  | .43  | .36  | .41  | .43  | .55  | .53  | .40  | .48  | .45  | .30  | .33  | .60  |
| 30. Skill - other staff         | .24  | .43  | .53  | .52  | .44  | .41  | .44  | .46  | .55  | .53  | .44  | .49  | .47  | .32  | .36  | .61  |
| 31. Thoroughness of treatment   | .27  | .43  | .57  | .55  | .51  | .42  | .44  | .48  | .55  | .58  | .40  | .47  | .46  | .33  | .36  | .68  |
| 32. How much you are helped     | .30  | .44  | .58  | .60  | .49  | .38  | .43  | .50  | .53  | .57  | .36  | .46  | .44  | .34  | .37  | .65  |
| 33. Overall quality of care     | .32  | .48  | .59  | .61  | .52  | .41  | .51  | .51  | .55  | .62  | .43  | .48  | .52  | .37  | .41  | .71  |

TABLE 7 (CONTINUED). INTER-ITEM CORRELATIONS FOR PREDICTOR VARIABLES

| Variables (a)                  | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 17. Admin staff/receptionists  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 18. Personal interest shown    | .60  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 19. Respect and privacy        | .63  | .81  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 20. Reassurance and support    | .60  | .81  | .81  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 21. Time during visit          | .58  | .76  | .73  | .77  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |      |
| 22. Explanation of procedures  | .50  | .72  | .70  | .75  | .72  | 1.00 |      |      |      |      |      |      |      |      |      |      |      |
| 23. Advice to stay healthy     | .58  | .68  | .68  | .69  | .68  | .72  | 1.00 |      |      |      |      |      |      |      |      |      |      |
| 24. Attention to what you say  | .54  | .76  | .74  | .76  | .76  | .71  | .72  | 1.00 |      |      |      |      |      |      |      |      |      |
| 25. Doctors to choose from     | .45  | .60  | .56  | .62  | .61  | .60  | .56  | .60  | 1.00 |      |      |      |      |      |      |      |      |
| 26. Seeing doctor of choice    | .52  | .69  | .63  | .67  | .68  | .64  | .61  | .67  | .78  | 1.00 |      |      |      |      |      |      |      |
| 27. Choosing a personal doctor | .52  | .65  | .59  | .66  | .64  | .64  | .59  | .68  | .77  | .90  | 1.00 |      |      |      |      |      |      |
| 28. Examination and diagnosis  | .49  | .69  | .64  | .69  | .63  | .64  | .58  | .66  | .60  | .64  | .61  | 1.00 |      |      |      |      |      |
| 29. Skill - doctors            | .51  | .64  | .65  | .70  | .64  | .65  | .60  | .65  | .61  | .64  | .64  | .78  | 1.00 |      |      |      |      |
| 30. Skill - other staff        | .61  | .65  | .65  | .66  | .63  | .64  | .63  | .64  | .60  | .65  | .64  | .69  | .80  | 1.00 |      |      |      |
| 31. Thoroughness of treatment  | .58  | .73  | .68  | .76  | .70  | .66  | .63  | .70  | .62  | .67  | .66  | .78  | .81  | .79  | 1.00 |      |      |
| 32. How much you are helped    | .55  | .70  | .66  | .71  | .65  | .64  | .61  | .67  | .58  | .64  | .61  | .72  | .74  | .69  | .81  | 1.00 |      |
| 33. Overall quality of care    | .63  | .74  | .70  | .76  | .69  | .67  | .64  | .70  | .65  | .68  | .62  | .75  | .74  | .75  | .85  | .85  | 1.00 |

(a) All correlations are significant at the  $p < .001$  level, two-tailed test.

between Seeing the Doctor of Your Choice and Choosing a Personal Doctor ( $r = .90$ ), Thoroughness of Treatment and Overall Quality of Care ( $r = .85$ ), and How Much You Are Helped and Overall Quality of Care ( $r = .85$ ). Respect and Privacy, Reassurance and Support, and Time During Visit were all three correlated at  $r = .81$ . Skill of Doctors, Skill of Other Staff Members, and Thoroughness of Treatment also were highly inter-correlated, ranging from  $r = .79$  to  $.81$ .

#### Internal Consistency

Inter-item correlations were also analyzed to assess whether the alpha estimates reported earlier were high due to a consistency of responses or artificially inflated due to item redundancy. Using the inter-item correlation criterion of  $r = .30$  to  $.70$  (Hinshaw & Atwood, 1981), the number of inter-item correlations fitting the  $.30$  to  $.70$  criterion were 42 out of 45 correlations for Access to Care and 3 out of 3 for Physical Environment of Facility (see Table 7). Examination of the other inter-item correlations showed extensive redundancy ( $r > .70$ ). Inter-item correlations fitting the  $.30$  to  $.70$  criterion were 0 out of 1 correlation for Finance, 6 out of 15 for Interpersonal Care, 0 out of 3 for

Communications, 0 out of 3 for Choice and Continuity, 1 out of 6 for Technical Quality, and 0 out of 1 for Outcomes.

#### Correlations with Demographic Variables

The correlations between demographic variables and the criterion variables are presented in Table 8. Significant correlations were found between the criterion variables and age, gender, racial background, marital status, pay grade, branch of military service, and beneficiary category. Health status was not found to be significant and deleted from further analysis.

The correlations between the criterion variables and age groups ranged from  $r = .24$  to  $.35$ ,  $p < .001$ , with lower age groups ( $>21$  and 21-29 years) negatively correlated and the older age groups (50-59 and  $>60$  years) positively correlated. The average scores in rating Overall Evaluation for the age cohorts were:  $>21$  (2.95), 21-29 (3.13), 30-39 (3.37), 40-49 (3.49), 50-59 (4.10), and  $>60$  (4.21).

Males were positively and significantly correlated with Overall Evaluation, Overall Satisfaction, and Medical Care is Just About Perfect, ranging from  $r = .13$  to  $.20$ ,  $p < .001$ . Conversely, males were negatively correlated with Could Be Better and

TABLE 8. CORRELATION BETWEEN CRITERION VARIABLES AND DEMOGRAPHIC VARIABLES

| Variables           | Criterion Variables       |                             |                        |                                |                                 |
|---------------------|---------------------------|-----------------------------|------------------------|--------------------------------|---------------------------------|
|                     | Overall<br>Evaluation (a) | Overall<br>Satisfaction (b) | Could Be<br>Better (c) | Medical Care<br>is Perfect (d) | Dissatisfied<br>with Things (e) |
| Age:                |                           |                             |                        |                                |                                 |
| <21 years           | -.11**                    | -.11**                      | .02**                  | -.07                           | .06                             |
| 21-29 years         | -.24***                   | -.16***                     | .18***                 | -.20***                        | .13**                           |
| 30-39 years         | -.08*                     | -.10*                       | .06                    | -.08                           | .05                             |
| 40-49 years         | -.01                      | .03                         | .06                    | -.05                           | .06                             |
| 50-59 years         | .14**                     | .08*                        | -.17***                | .10*                           | -.12**                          |
| >60 years           | .35***                    | .28***                      | -.23***                | .33***                         | -.23***                         |
| Gender (f)          |                           |                             |                        |                                |                                 |
|                     | .20***                    | .14**                       | -.16***                | .13**                          | -.15***                         |
| Racial Background:  |                           |                             |                        |                                |                                 |
| White               | .14**                     | .05                         | -.06                   | .01                            | -.01                            |
| Black               | -.15***                   | -.10*                       | .06                    | -.05                           | .02                             |
| Asian               | .01                       | .03                         | -.00                   | .07                            | -.01                            |
| Pacific Islander    | -.02                      | .02                         | -.01                   | .03                            | -.05                            |
| Indian/Alut./Eskimo | -.05                      | -.01                        | .01                    | -.04                           | .03                             |
| Hispanic/Spanish    | -.07                      | .01                         | -.01                   | .03                            | -.06                            |
| Marital Status:     |                           |                             |                        |                                |                                 |
| Single              | -.01                      | -.02                        | -.03                   | -.02                           | -.01                            |
| Married             | -.10*                     | -.09*                       | .13**                  | -.13**                         | .12**                           |
| Separated           | -.00                      | .01                         | .02                    | -.08*                          | .02                             |
| Divorced            | .06                       | .05                         | -.12**                 | .12**                          | -.10*                           |
| Widowed             | .11**                     | .12**                       | -.07                   | .16***                         | -.10*                           |
| Health Status       | -.05                      | -.02                        | .01                    | .02                            | .00                             |

TABLE 8 (CONTINUED). CORRELATION BETWEEN CRITERION VARIABLES AND DEMOGRAPHIC VARIABLES

| Variables              | Criterion Variables       |                             |                        |                                |                                 |
|------------------------|---------------------------|-----------------------------|------------------------|--------------------------------|---------------------------------|
|                        | Overall<br>Evaluation (a) | Overall<br>Satisfaction (b) | Could Be<br>Better (c) | Medical Care<br>is Perfect (d) | Dissatisfied<br>with Things (e) |
| Pay Grade:             |                           |                             |                        |                                |                                 |
| E1-E4                  | -.20***                   | -.10*                       | .12**                  | -.14**                         | .12**                           |
| E5-E6                  | -.13**                    | -.13**                      | .07                    | -.09*                          | .05                             |
| E7-E9                  | .12**                     | .11**                       | -.09*                  | .13**                          | -.07                            |
| M01-M4                 | .03                       | .02                         | -.02                   | .03                            | -.01                            |
| O1-O3                  | -.05                      | -.08                        | .06                    | -.07                           | .02                             |
| O4-O5                  | .17***                    | .14**                       | -.06                   | .10*                           | -.03                            |
| O6-O9                  | .13**                     | .08*                        | -.07                   | .08                            | -.07                            |
| Branch of Service:     |                           |                             |                        |                                |                                 |
| Army                   | .03                       | .07                         | -.01                   | .06                            | -.09*                           |
| Navy                   | .02                       | -.03                        | .03                    | -.03                           | .04                             |
| Air Force              | .02                       | .00                         | -.01                   | -.05                           | .06                             |
| Marine                 | -.11**                    | -.09*                       | .06                    | -.05                           | .06                             |
| Coast Guard            | -.01                      | -.02                        | -.00                   | .01                            | .03                             |
| Beneficiary Category:  |                           |                             |                        |                                |                                 |
| Active Duty (AD)       | -.15***                   | -.13**                      | .06                    | -.12**                         | .05                             |
| Family Member of AD    | -.21***                   | -.14**                      | .18***                 | -.18***                        | .16***                          |
| Retired (Ret)          | .31***                    | .23***                      | -.22***                | .23***                         | -.19***                         |
| Family Member of Ret   | .14**                     | .09*                        | -.04                   | .09*                           | -.04                            |
| Family Member of Dec   | .08                       | .10*                        | -.06                   | .14**                          | -.07                            |
| Veterans Affairs (VAB) | .07                       | .06                         | -.14**                 | .12**                          | -.12**                          |

- (a) The higher the response, the higher the individual's overall evaluation of the health care at TAMC.  
 (b) The higher the response, the more the individual is satisfied with the medical care he or she receives at TAMC.  
 (c) The higher the response, the more the individual agrees that things could be better at TAMC.  
 (d) The higher the response, the more the individual feels the medical care at TAMC is just about perfect.  
 (e) The higher the response, the more the individual is dissatisfied with some things about the medical care at TAMC.  
 (f) 1 = male; 0 = female.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; two-tailed significance.



Dissatisfied With Things. The average Overall Evaluation rating for the males surveyed was 3.75, while the female patients obtained a mean score of 3.34.

The criterion variables did not appear to be significantly related to racial background, except for racial categories white and black. The racial category of white was positively and significantly correlated with Overall Evaluation ( $r = .14$ ,  $p < .01$ ), while the racial category of black was negatively correlated with Overall Evaluation ( $r = -.15$ ,  $p < .001$ ) and Overall Satisfaction ( $r = -.10$ ,  $p < .05$ ). Although the difference in the Overall Evaluation rating between white and black patients was found to be significant, the other racial categories (Asian, Pacific Islander, American Indian, and Spanish) showed no significant differences in their evaluations.

Marital status was negatively and statistically correlated between married and Overall Evaluation, Overall Satisfaction and Medical Care is Just About Perfect. Widowed was positively and statistically correlated with these same three criterion variables, ranging from  $r = .11$  to  $.16$ ,  $p < .01$ . Marital status of divorced was also found to be positively and

significantly correlated with Medical Care is Just About Perfect ( $r = .12$ ).

The criterion variables did not appear to be significantly related to branch of military service, except for Marines which was negatively correlated with Overall Evaluation at  $r = -.11$ ,  $p < .01$ . Pay grade was found to be significantly correlated with Overall Evaluation and ranged from  $r = -.19$  to  $.17$ ,  $p < .001$ . Lastly, beneficiary category was also significantly correlated with Overall Evaluation and ranged from  $r = -.21$  to  $.31$ ,  $p < .001$ .

#### Correlations with Utilization Variables

The correlations between the utilization variables and the criterion variables are presented in Table 9. The length of time the respondent had used TAMC for health care was found to be correlated with Overall Evaluation and Overall Satisfaction, ranging from  $r = -.17$  to  $.23$ ,  $p < .001$ .

Significant correlations between the reasons for not using TAMC for the majority of health care and Overall Satisfaction were found in the areas of Not Treated Courteously ( $r = -.19$ ,  $p < .001$ ), and Too Difficult to Get an Appointment ( $r = -.15$ ,  $p < .001$ ). Appointment Wait Time "3 Days to 1 Week" was positively

TABLE 9. CORRELATION BETWEEN CRITERION VARIABLES AND UTILIZATION VARIABLES

| Variables                      | Criterion Variables       |                             |                        |                                |                                 |
|--------------------------------|---------------------------|-----------------------------|------------------------|--------------------------------|---------------------------------|
|                                | Overall<br>Evaluation (a) | Overall<br>Satisfaction (b) | Could Be<br>Better (c) | Medical Care<br>is Perfect (d) | Dissatisfied<br>with Things (e) |
| Length of Time Used:           |                           |                             |                        |                                |                                 |
| < 1 year                       | -.09*                     | -.09*                       | -.01                   | -.06                           | -.05                            |
| 1-2 years                      | -.17***                   | -.13**                      | .12**                  | -.12**                         | .12**                           |
| > 2 years                      | .23***                    | .20***                      | -.10*                  | .16***                         | -.07                            |
| Percent of Care From:          |                           |                             |                        |                                |                                 |
| TAMC                           | .09*                      | .11**                       | -.05                   | .11**                          | -.03                            |
| Other MTFs                     | -.08                      | -.08                        | .02                    | -.08                           | .01                             |
| CHAMPUS                        | -.09*                     | -.11**                      | .09*                   | -.11**                         | .05                             |
| Private Insurance              | .09*                      | .05                         | -.05                   | .06                            | -.01                            |
| Reason Majority Not from TAMC: |                           |                             |                        |                                |                                 |
| Lacks services                 | -.07                      | -.06                        | .04                    | -.03                           | .05                             |
| Not conveniently located       | -.01                      | .01                         | .05                    | .00                            | .02                             |
| Not treated courteously        | -.19***                   | -.22***                     | .09*                   | -.17***                        | .10*                            |
| Providers not thorough         | -.06                      | -.07                        | .05                    | -.08                           | .06                             |
| See different providers        | -.04                      | -.03                        | .04                    | -.01                           | .02                             |
| Schedule conflicts             | -.00                      | -.00                        | -.06                   | .03                            | -.03                            |
| Appointments too close         | -.09*                     | -.15***                     | .10*                   | -.14**                         | .09*                            |
| Live too far away              | -.05                      | .02                         | .02                    | .02                            | -.01                            |
| Wait time to be seen           | -.08*                     | -.03                        | .06                    | -.09*                          | .05                             |
| Use other MTFs                 | -.06                      | .05                         | -.14**                 | .06                            | -.09*                           |
| N/A - Majority at TAMC         | .09*                      | .10*                        | -.01                   | .08*                           | -.02                            |
| Same Provider                  | .38***                    | .32***                      | -.25***                | .35***                         | -.22***                         |
| Appointment Wait Time:         |                           |                             |                        |                                |                                 |
| 2 days or less                 | .05                       | .09*                        | -.08                   | .10*                           | -.12**                          |
| 3 days - 1 week                | .14**                     | .18***                      | -.09*                  | .17***                         | -.12**                          |
| 1 - 2 weeks                    | .04                       | .04                         | -.02                   | .01                            | -.00                            |
| 3 - 4 weeks                    | -.05                      | -.11*                       | .09*                   | -.10*                          | .09*                            |
| 5 - 6 weeks                    | -.13**                    | -.14**                      | .08                    | -.15***                        | .11**                           |
| > 6 weeks                      | -.13**                    | -.12**                      | .07                    | -.06                           | .08                             |

TABLE 9 (CONTINUED). CORRELATION BETWEEN CRITERION VARIABLES AND UTILIZATION VARIABLES

| Variables                        | Criterion Variables    |                          |                     |                             |                              |
|----------------------------------|------------------------|--------------------------|---------------------|-----------------------------|------------------------------|
|                                  | Overall Evaluation (a) | Overall Satisfaction (b) | Could Be Better (c) | Medical Care is Perfect (d) | Dissatisfied with Things (e) |
| Wait Time to be Seen:            |                        |                          |                     |                             |                              |
| < 10 minutes                     | .08                    | .08*                     | -.18***             | .10*                        | -.13**                       |
| 10 - 15 minutes                  | .23***                 | .18***                   | -.17***             | .19***                      | -.17***                      |
| 16 - 30 minutes                  | .06                    | .09*                     | .03                 | .06                         | -.04                         |
| 31 - 45 minutes                  | -.22***                | -.20***                  | .15***              | -.22***                     | .19***                       |
| 46 - 60 minutes                  | -.11**                 | -.16***                  | .10*                | -.15***                     | .11*                         |
| > 60 minutes                     | -.19***                | -.16***                  | .12**               | -.12**                      | .15***                       |
| Clinics Most Frequently Visited: |                        |                          |                     |                             |                              |
| General Surgery                  | .05                    | .06                      | -.05                | .04                         | -.02                         |
| Internal Medicine                | .18***                 | .15***                   | -.10*               | .17***                      | -.12**                       |
| Pediatrics                       | -.09*                  | -.07                     | .05                 | -.09*                       | .07                          |
| Obstetrics/Gynecology            | -.24***                | -.22***                  | .19***              | .21***                      | -.23***                      |
| Orthopedics                      | -.07                   | -.09*                    | .07                 | -.06                        | .08                          |
| Mental Health Services           | .02                    | -.01                     | .02                 | -.01                        | .01                          |
| Cardiology                       | .14**                  | .13**                    | -.13**              | .15***                      | -.13**                       |
| Ear, Nose & Throat               | .12**                  | .06                      | -.04                | .05                         | -.03                         |
| Optometry                        | .00                    | .03                      | -.03                | .06                         | -.11*                        |
| Allergy                          | -.00                   | -.08                     | .06                 | -.01                        | .04                          |
| Physical Therapy                 | .01                    | .00                      | .01                 | -.04                        | .05                          |
| Neurology                        | .02                    | .01                      | -.01                | .03                         | -.03                         |
| Pulmonary                        | .06                    | .06                      | -.05                | .05                         | -.06                         |
| Dermatology                      | .05                    | .04                      | -.08                | .05                         | -.08                         |
| Emergency Room                   | -.05                   | -.05                     | .10*                | -.05                        | .04                          |
| Urology                          | .10*                   | .09*                     | -.13**              | .07                         | -.08                         |
| Family Practice                  | .04                    | .05                      | -.03                | .09*                        | -.08                         |
| Medical Specialties              | .08                    | .08                      | -.01                | .02                         | -.01                         |
| Adult Outpatient Clinic          | -.04                   | -.06                     | .02                 | -.02                        | .05                          |

(a) The higher the response, the higher the individual's overall evaluation of the health care at TAMC.

(b) The higher the response, the more the individual is satisfied with the medical care he or she receives at TAMC.

(c) The higher the response, the more the individual agrees that things could be better at TAMC.

(d) The higher the response, the more the individual feels the medical care at TAMC is just about perfect.

(e) The higher the response, the more the individual is dissatisfied with some things about the medical care at TAMC.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; two-tailed significance.

correlated with Overall Satisfaction ( $r = .18$ ,  $p < .001$ ), but was found to be negatively correlated with "5 to 6 Weeks" ( $r = -.14$ ,  $p < .01$ ) and "Over 6 Weeks" ( $r = -.12$ ,  $p < .01$ ).

Wait Time to be Seen "10 to 15 Minutes" was positively correlated with Overall Evaluation ( $r = .23$ ,  $p < .001$ ), and negatively correlated at "31 to 45 Minutes" ( $r = -.22$ ,  $p < .001$ ), "46 to 60 Minutes" ( $r = -.11$ ,  $p < .01$ ), and "Greater than 60 Minutes" ( $r = -.19$ ,  $p < .001$ ).

The highest correlation between the utilization variables and criterion variables was in the frequency of Seeing the Same Provider ( $r = .38$ ,  $p < .001$ ). Sixty-four percent of the over 60 age group also reported seeing either the same provider "always" or "most of the time".

In comparing the clinics most frequently visited to the criterion variables, Internal Medicine; Cardiology; Ear, Nose, and Throat; and Urology were found to be positively and statistically correlated with Overall Evaluation ( $r = .18$ ,  $p < .001$ ;  $r = .14$ ,  $p < .01$ ;  $r = .12$ ,  $p < .01$ ; and  $r = .10$ ,  $p < .05$ , respectively). Clinics which were negatively and significantly correlated with Overall Evaluation

were Pediatrics ( $r = -.09$ ,  $p < .05$ ) and Obstetrics/Gynecology ( $r = -.24$ ,  $p < .001$ ). Family Practice was positively correlated with Medical Care is Just About Perfect ( $r = .09$ ,  $p < .05$ ), and Orthopedics was negatively correlated with Overall Satisfaction ( $r = -.09$ ,  $p < .05$ ).

#### Predictor and Clinic Correlations

Further analysis of clinics that were significantly correlated with criterion variables revealed that the clinics were also significantly correlated with the predictor variables (Table 10). Some of the highest correlations between Internal Medicine and the predictor variables were in the Interpersonal Care dimension, ranging from  $r = .11$  to  $.19$ ,  $p < .001$ . Internal Medicine was also found positively and significantly correlated with Hours of Operation ( $r = .19$ ,  $p < .001$ ), and Seeing the Same Provider ( $r = .19$ ,  $p < .001$ ).

In the area of Access to Care, Pediatrics was negatively and significantly correlated with Making Appointments by Phone ( $r = -.13$ ,  $p < .01$ ), Information by Phone ( $r = -.13$ ,  $p < .01$ ), and Wait Time at Office ( $r = -.10$ ,  $p < .05$ ). Wait Time to be Seen was positively correlated with Pediatrics at "16 to 30

TABLE 10. CORRELATION BETWEEN CLINICS AND PREDICTOR/UTILIZATION VARIABLES

| Variables                   | Internal<br>Medicine | Pediatrics | Obstetrics/<br>Gynecology | Orthopedics | Cardiology | Urology |
|-----------------------------|----------------------|------------|---------------------------|-------------|------------|---------|
| Access to Care:             |                      |            |                           |             |            |         |
| Convenience of location     | .06                  | -.01       | -.15**                    | .00         | .06        | .03     |
| Hours of operation          | .19***               | -.08       | -.17***                   | .02         | .13**      | .12**   |
| Specialty care              | .10*                 | -.02       | -.12**                    | -.06        | .12**      | .07     |
| Hospital care               | .14**                | .01        | -.14**                    | -.06        | .14**      | .04     |
| Emergency care              | .21***               | -.08       | -.22***                   | -.06        | .13**      | .08     |
| Appointments by phone       | .12**                | -.13**     | -.31***                   | -.05        | .16***     | .14**   |
| Wait time at office         | .16***               | -.10*      | -.26***                   | -.11**      | .12***     | .11**   |
| Wait time for appointment   | .08                  | -.01       | -.19***                   | -.08*       | .09*       | .12**   |
| Information by phone        | .07                  | -.13**     | -.19***                   | -.06        | .07        | .06     |
| Medical care                | .13**                | -.07       | -.16***                   | -.08        | .12**      | .06     |
| Physical Environment:       |                      |            |                           |             |            |         |
| Overall cleanliness         | .06                  | -.02       | -.08                      | .00         | .00        | .06     |
| Location of services        | .12**                | .01        | -.08                      | -.01        | .06        | .06     |
| Waiting/treatment areas     | .13**                | -.06       | -.13**                    | -.03        | .08        | .12**   |
| Finances:                   |                      |            |                           |             |            |         |
| Protection against expenses | .07                  | -.03       | -.03                      | .02         | .07        | -.00    |
| Care w/o financial problems | .04                  | .02        | -.06                      | .01         | .08        | .02     |
| Interpersonal Care:         |                      |            |                           |             |            |         |
| Doctors and medical staff   | .19***               | -.08*      | -.23***                   | -.07        | .08        | .10*    |
| Admin staff/receptionists   | .11**                | -.08       | -.20***                   | -.06        | .13**      | .08*    |
| Personal interest shown     | .16***               | -.08       | -.27***                   | -.12**      | .14**      | .11**   |
| Respect and privacy         | .17***               | -.07       | -.21***                   | -.06        | .12**      | .10*    |
| Reassurance and support     | .13**                | -.04       | -.21***                   | -.09*       | .10*       | .10*    |
| Time during visit           | .15***               | -.07       | -.26***                   | -.05        | .10*       | .11**   |
| Communications:             |                      |            |                           |             |            |         |
| Explanation of procedures   | .13**                | -.01       | -.24***                   | -.06        | .06        | .08     |
| Advice to stay healthy      | .12**                | -.02       | -.18***                   | -.10*       | .07        | .06     |
| Attention to what you say   | .10*                 | -.06       | -.22***                   | -.09*       | .11*       | .10*    |

TABLE 10 (CONTINUED). CORRELATION BETWEEN CLINICS AND PREDICTOR/UTILIZATION VARIABLES

| Variables                  | Internal<br>Medicine | Pediatrics | Obstetrics/<br>Gynecology | Orthopedics | Cardiology | Urology |
|----------------------------|----------------------|------------|---------------------------|-------------|------------|---------|
| Choice and Continuity:     |                      |            |                           |             |            |         |
| Doctors to choose from     | .10*                 |            | -.15**                    | -.09*       | .15**      | .06     |
| Seeing doctor of choice    | .13**                | -.15**     | -.29***                   | -.11*       | .15**      | .12*    |
| Choosing a personal doctor | .11*                 | -.12*      | -.31***                   | -.04        | .15**      | .06     |
| Technical Quality:         |                      |            |                           |             |            |         |
| Examination and diagnosis  | .16***               | -.12**     | -.20***                   | -.13**      | .11**      | .09*    |
| Skill - doctors            | .13**                | -.11*      | -.19***                   | -.10*       | .12**      | .09*    |
| Skill - other staff        | .08*                 | -.09*      | -.14**                    | -.08        | .13**      | .09*    |
| Thoroughness of treatment  | .15***               | -.08*      | -.23***                   | -.07        | .15**      | .11**   |
| Outcomes:                  |                      |            |                           |             |            |         |
| How much you are helped    | .13***               | -.06       | -.19***                   | -.10*       | .14**      | .10*    |
| Overall quality of care    | .15***               | -.08       | -.22***                   | -.12**      | .14**      | .10*    |
| Same Provider              | .19***               | -.15***    | -.38***                   | .01         | .14**      | .03     |
| Appointment Wait Time:     |                      |            |                           |             |            |         |
| 2 days or less             | .02                  | .03        | -.08*                     | -.06        | -.05       | -.02    |
| 3 days - 1 week            | -.05                 | .12**      | .00                       | -.06        | .09*       | -.01    |
| 1 - 2 weeks                | -.04                 | .04        | -.06                      | .02         | -.05       | .04     |
| 3 - 4 weeks                | .07                  | .09*       | .09*                      | .01         | .03        | .00     |
| 5 - 6 weeks                | .02                  | .03        | .09*                      | .04         | -.02       | -.02    |
| > 6 weeks                  | -.03                 | -.03       | -.06                      | .04         | .02        | -.01    |
| Wait Time to be Seen:      |                      |            |                           |             |            |         |
| < 10 minutes               | -.06                 | -.01       | -.12**                    | -.09*       | .01        | .02     |
| 10 - 15 minutes            | .05                  | -.08       | -.16***                   | -.07        | .09*       | .03     |
| 16 - 30 minutes            | .10*                 | .02        | .00                       | -.05        | .02        | .03     |
| 31 - 45 minutes            | -.11**               | .09*       | .22***                    | .09*        | -.08       | -.00    |
| 46 - 60 minutes            | -.03                 | .02        | .10*                      | .01         | -.04       | -.05    |
| > 60 minutes               | .00                  | -.00       | -.01                      | .14**       | -.00       | -.05    |

\* p &lt; .05, \*\* p &lt; .01, \*\*\* p &lt; .001; two-tailed significance.



minutes" ( $\underline{r} = .10$ ,  $p < .05$ ), but negatively correlated at "31 to 45 minutes" ( $\underline{r} = -.11$ ,  $p < .01$ ). However, Appointment Wait Time for Pediatrics was positively correlated with "3 days to 1 week" ( $\underline{r} = .12$ ,  $p < .01$ ). Pediatrics was also negatively and significantly correlated with all the items used to measure Technical Quality (ranging from  $\underline{r} = -.08$  to  $-.12$ ,  $p < .05$ ), and the items used to measure Choice and Continuity (ranging from  $\underline{r} = -.10$  to  $-.15$ ,  $p < .05$ ).

Obstetrics/Gynecology was negatively and significantly correlated with all predictor variables, except for the items used to measure the dimension of Finances. The highest negative correlations between Obstetrics/Gynecology and the predictor variables were Making Appointments by Phone, Wait Time at Office, Personal Interest Shown, Time During Visit, Seeing Doctor of Choice, and Choosing a Personal Doctor, with ranges from  $\underline{r} = -.26$  to  $-.31$ ,  $p < .001$ .

Orthopedics was negatively and significantly correlated with several of the predictor variables. These variables included Wait Time at Office ( $\underline{r} = -.11$ ,  $p < .01$ ), Wait Time for Appointment ( $\underline{r} = -.08$ ,  $p < .05$ ), Personal Interest Shown ( $\underline{r} = -.12$ ,  $p < .01$ ), Reassurance and Support ( $\underline{r} = -.09$ ,  $p < .05$ ), Advice

to Stay Healthy ( $r = -.10$ ,  $p < .05$ ), Attention to What You Say ( $r = -.09$ ,  $p < .05$ ), Seeing Doctor of Choice ( $r = -.11$ ,  $p < .05$ ), Examination and Diagnosis ( $r = -.13$ ,  $p < .01$ ), and Skill of Doctors ( $r = -.10$ ,  $p < .05$ ). Orthopedics was also negatively correlated with the predictor variables used to measure Outcomes dimension and ranged from  $r = -.10$  to  $-.12$ ,  $p < .05$ . The highest positive correlation between Orthopedics and the utilization variables was Wait Time to be Seen of greater than 60 minutes ( $r = .14$ ,  $p < .01$ ).

Cardiology and Urology were positively and significantly correlated with a number of the predictor variables. The highest correlations between Cardiology and the predictor variables were in the areas of Making Appointments by Phone ( $r = .16$ ,  $p < .001$ ), Thoroughness of Treatment ( $r = .15$ ,  $p < .001$ ), Personal Interest Shown ( $r = .14$ ,  $p < .01$ ), and all items relating to the Choice and Continuity dimension ( $r = .15$ ,  $p < .001$ ). The highest correlations between Urology and the predictor variables were in the areas of Making Appointments by Phone ( $r = .14$ ,  $p < .01$ ), Seeing Doctor of Choice ( $r = .12$ ,  $p < .01$ ), and Thoroughness of Treatment ( $r = .11$ ,  $p < .01$ ).

### Principal Components Factor Analysis

During the principal components factor analysis, only the component factors whose eigenvalues were greater than 1 were retained. Variables with Varimax rotated loadings of .60 or above in absolute value were used in the interpretation of the rotated factors. Twenty-six variables loaded with a value greater than .60 to form five distinct factors. The five factors accounted for 70.0 percent of the total variance of items. These factors were labeled Direct Care, Provider Choice, Accessibility of Services, Physical Environment, and Financial Protection. The variables and loading values are presented in Table 11.

The empirical clustering of the variables used to measure the dimensions of Access to Care, Physical Environment of Facility, Finances, and Choice and Continuity coincided almost exactly with the logical clustering of the items in the conceptual model. The Direct Care factor was dominated by the variables used to assess Interpersonal Care, Communications, Technical Quality, and Outcomes. The only item in these dimensions which did not show a strong association with the Direct Care factor was the friendliness and courtesy of the administrative staff and receptionists.

TABLE 11. RESULTS OF PRINCIPAL COMPONENTS FACTOR ANALYSIS  
(VARIMAX ROTATED FACTORS)

| Principal<br>Components      | Variable Loading<br>Values |
|------------------------------|----------------------------|
| 1. DIRECT CARE               |                            |
| Time during visit            | .7562                      |
| Explanation of procedures    | .7439                      |
| Advice to stay healthy       | .6876                      |
| Attention to what you say    | .7887                      |
| Examination and diagnosis    | .7630                      |
| Skill - doctors              | .7644                      |
| Skill - other staff          | .7278                      |
| Thoroughness of treatment    | .8068                      |
| How much you are helped      | .7502                      |
| Overall quality of care      | .7770                      |
| 2. PROVIDER CHOICE           |                            |
| Seeing doctor of choice      | .6856                      |
| Choosing a personal doctor   | .6876                      |
| 3. ACCESSIBILITY OF SERVICES |                            |
| Convenience of location      | .6288                      |
| Hours of operation           | .6551                      |
| Access to specialty care     | .6180                      |
| Access to hospital care      | .6967                      |
| Access to emergency care     | .6325                      |
| 4. PHYSICAL ENVIRONMENT      |                            |
| Overall cleanliness          | .7102                      |
| Location of services         | .6591                      |
| Waiting/treatment areas      | .7020                      |
| 5. FINANCIAL PROTECTION      |                            |
| Protection against expenses  | .8736                      |
| Care w/o financial problems  | .8635                      |

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NOTE: All 5 factors accounted for 70% of the variance of items.

### Multiple Linear Regression Analysis

Five separate stepwise regression analyses were performed, regressing each criterion variable on the five individual factors scores. A summary of the results of the regression analysis is presented in Table 12.

Results indicated that the component variable, Direct Care, was the strongest predictor for all criterion variables and accounted for 56.8 percent of the variance in overall evaluation with  $F(1,569) = 229.57$ ,  $p < .0001$ . Direct Care also accounted for 55.4 percent of the variance in overall satisfaction with  $F(1,571) = 330.24$ ,  $p < .0001$ . While other variables entered the regression equations, those variables contributed only 5.5 percent to the variance in overall evaluation and only 1.6 percent to the variance in overall satisfaction.

TABLE 12. RESULTS OF STEPWISE REGRESSION ANALYSIS

## 1. Variables Entered into Regression Equation for Overall Evaluation

| Variables     | Regression Coefficient | Standard Error | F(1,569) | Probability |
|---------------|------------------------|----------------|----------|-------------|
| Direct Care   | .0411                  | .0027          | 229.570  | .00000      |
| Accessibility | .0511                  | .0084          | 37.220   | .00000      |
| Age           | .0770                  | .0184          | 17.449   | .00003      |
| Wait Time     | .0637                  | .0272          | 5.491    | .01946      |
| Constant      | -.0036                 |                |          |             |

Total  $R^2 = .6233$ 

## 2. Variables Entered into Regression Equation for Overall Satisfaction

| Variables     | Regression Coefficient | Standard Error | F(1,569) | Probability |
|---------------|------------------------|----------------|----------|-------------|
| Direct Care   | .0512                  | .0028          | 330.238  | .00000      |
| Accessibility | .0414                  | .0090          | 21.326   | .00000      |
| Constant      | -5.5551                |                |          |             |

Total  $R^2 = .5700$ 

## 3. Variables Entered into Regression Equation for Things Could Be Better

| Variables     | Regression Coefficient | Standard Error | F(1,569) | Probability |
|---------------|------------------------|----------------|----------|-------------|
| Direct Care   | -.0269                 | .0040          | 45.260   | .00000      |
| Wait Time     | -.1496                 | .0402          | 13.814   | .00022      |
| Accessibility | -.0285                 | .0124          | 5.240    | .02244      |
| Constant      | .1366                  |                |          |             |

Total  $R^2 = .2682$

TABLE 12 (CONTINUED). RESULTS OF STEPWISE REGRESSION ANALYSIS

## 4. Variables Entered into Regression Equation for Medical Care is Perfect

| Variables       | Regression<br>Coefficient | Standard<br>Error | F(1,569) | Probability |
|-----------------|---------------------------|-------------------|----------|-------------|
| Direct Care     | .0502                     | .0038             | 171.734  | .00000      |
| Provider Choice | .0555                     | .0201             | 7.639    | .00590      |
| Accessibility   | .0245                     | .0104             | 5.508    | .01927      |
| Making Appts    | .0683                     | .0299             | 5.211    | .02282      |
| Age             | .0462                     | .0230             | 4.026    | .04528      |
| Constant        | -6.5040                   |                   |          |             |

Total  $R^2 = .5769$ 

## 5. Variables Entered into Regression Equation for Dissatisfied with Some Things

| Variables     | Regression<br>Coefficient | Standard<br>Error | F(1,569) | Probability |
|---------------|---------------------------|-------------------|----------|-------------|
| Direct Care   | -.0495                    | .0049             | 103.772  | .00000      |
| Wait Time     | -.1734                    | .0465             | 13.927   | .00021      |
| Environment   | .0673                     | .0259             | 6.766    | .00953      |
| Accessibility | -.0293                    | .0144             | 4.105    | .04323      |
| Constant      | -.0611                    |                   |          |             |

Total  $R^2 = .3556$

## DISCUSSION

Prior research efforts have shown satisfaction surveys to be a rich source of patient information, and customer satisfaction ratings provide crucial input to an organization's TQM and quality improvement activities. However, researchers caution the interpretation of survey results (Abramowitz, Cote, & Berry; 1987, McMillan, 1987; Fleming, 1979) since subjective survey instruments are limited in determining the true degree of satisfaction because satisfaction ratings of hospital care, as with medical care, are typically overinflated. Nevertheless, even with generally high responses, there are variations in the ratings which are useful to determine which factors or individual items account for the differences.

### Level of Satisfaction

The results of this study indicate that the majority of patients surveyed were very satisfied with the medical care they received and rated TAMC as above average in their overall evaluation of the health care provided. Although these assessments are very favorable, 70 percent of the respondents indicated there were some things about the medical care at TAMC that could be improved.



The individual dimensions of patient satisfaction receiving the highest overall ratings were Physical Environment and Finances. Physical Environment obtained the highest ratings especially in the area of overall cleanliness. The maintenance, atmosphere, and physical appearance of the hospital also received a number of positive comments in response to the open-ended questions in the survey. Additionally, the respondents felt that TAMC provided them substantial protection against medical expenses and the ability to obtain medical care without financial problems. Since health care in a military treatment facility is provided at no cost to its eligible beneficiary population, one would normally expect the financial aspects to be biased toward the treatment facility. Therefore, financial considerations may appear to be an inappropriate measure of satisfaction in this study due to the uniqueness of the beneficiary population examined. However, Ehreth (1993) has suggested that the importance of cost may be so overwhelming in a health care setting that the patient's satisfaction is unaffected by such things as the amount of time they have to wait to see a provider or discourteous staff members. But, cost, or in this case the lack of cost

for health care services, did not appear to significantly influence any of the other ratings of satisfaction.

Access to Care received the most adverse ratings, particularly in the areas of arrangements for making appointments for medical care by phone, length of time the patient had to wait between making an appointment for routine care and the day of the visit, length of time the patient had to wait at the office to see the health care provider, and the availability of medical information or advice by phone. Dissatisfaction with these four aspects ranged from 38 to 52 percent of the respondents. This finding is consistent with other research efforts that reported the occurrence of dissatisfaction in an outpatient care setting was most typically found in the area of accessibility (Hulka, Zyzanski, Cassel, & Thompson, 1970). Additionally, 42 to 50 percent of the patients surveyed were dissatisfied with the lack of ease in seeing the doctor of their choice and arrangements for choosing a personal doctor.

It should be noted, however, that waiting times to see a provider of less than 15 minutes were positively correlated with the patient's overall evaluation and

satisfaction; whereas, waiting times of over 30 minutes were consistently negatively correlated. This suggests that patients will accept a short wait past their scheduled appointment time, but consider their time as being valuable and become dissatisfied if required to wait more than 30 minutes. The waiting time for an appointment also demonstrated a distinct contrast in satisfaction levels. Patients who indicated that their normal wait time for an appointment was less than one week related higher levels of overall satisfaction than those who indicated that it took over four weeks to see a provider for routine care.

The professionalism and concern of the medical staff was the most frequent response when the respondents were asked what things they liked the most about TAMC. These comments were supported by the high ratings given to the friendliness and courtesy of the doctors and medical staff. While the friendliness and courtesy of the administrative staff (e.g., receptionists) were rated as above average, their mean score was almost ten percent lower than the mean score for the physicians and medical staff. Surprisingly though, despite these complementary ratings, almost 12 percent of the

responses to the open-ended questions indicated that the friendliness and courtesy of the receptionists, physicians, and nurses needed to be improved. This inconsistency may be attributed to the reported bias towards the more favorable responses in survey ratings (McMillan, 1987).

### Determinants of Satisfaction

The single most important indicator of patient satisfaction was the overall quality of the care and services as perceived by the respondent. The next most important factor was the patient's perception of the thoroughness of treatment. Further examination of these results indicated that the major predictors of patient satisfaction were not limited to any one specific dimension of satisfaction, but were a result of the interaction between the process and outcomes domains defined in the conceptual model. This interaction accounted for over 55 percent of the variance in patient satisfaction and overall evaluation of the care received.

The strong correlations between the dimensions of the process domain -- Interpersonal Care, Communications, and Technical Quality -- support the assumption that all three measures test the same

domain. This domain may be referred to as the "process" of providing "direct care". The strong correlation between the process domain and outcomes domain may be explained, in part, by what Press, Ganey, and Malone (1991) refer to as the "placebo effect". This phenomenon suggests that the perceived quality of care substantially influences outcomes. Some estimates even suggest that the "placebo effect" may contribute up to one-third of the healing process. Thus, the patient's perception of their health care provider's competency, caring nature, and interest in their medical problem has a substantial influence on the patient's health care outcomes. Additionally, research has shown that the satisfaction with the care received is an important influence determining whether a person seeks medical advice and complies with treatment (Locker & Dunt, 1978) which would also suggest a better outcome.

While making appointments by phone received the lowest ratings for the survey, it failed to enter the regression equation for either overall evaluation or overall satisfaction. However, its failure to enter into either equation is not surprising. While patients might be frustrated with the appointment system, the

patient's satisfaction with the health care system is more closely associated with their interaction with the hospital staff and perception of the technical quality of the providers than the ease of making an appointment by phone.

#### Demographic Factors

Age, gender, racial background, martial status, pay grade, branch of military service, beneficiary category, and health status were examined to ascertain what demographic factors affected the evaluations of care. Prior research efforts have shown that such characteristics as age, gender, and racial background, influence overall patient satisfaction (Fleming, 1979).

The sample demographic categories of age, gender, pay grade, branch of military service, and beneficiary category appeared to be consistent with what would be normally accepted as the TAMC beneficiary population. Of particular concern with the sample was that almost 73 percent of respondents were white and approximately 87 percent of the respondents were married. However, this researcher was unable to determine the true demographic characteristics of the TAMC beneficiary population. But, because proper sampling techniques were employed during the conduct of this study, the

demographic characteristics reported in the sample were accepted as representative of the population.

Except for health status, the demographic factors examined appeared to influence patient satisfaction in varying degrees. Age emerged as having the greatest effect on the evaluations. Older patients were found to rate their satisfaction consistently higher than the younger respondents, and the younger patients were found to be more critical in their responses. This same pattern of responses was reflected in pay grade and beneficiary category, with the lower ranks and active duty less satisfied, and the higher ranks and retirees more satisfied. This consistency of responses between age, pay grade, and beneficiary category is further supported by the significant correlations between these three factors.

The only significant difference within the racial backgrounds appeared between the ratings of black and white patients. Black patients generally had a lower overall evaluation rating and were less satisfied than white patients. However, a significant difference in responses was not found in the ratings for the other racial categories. This finding is in opposition to the reported tendency of minority groups to be less

critical in their satisfaction with medical care (Fleming, 1981).

Significant differences were also noted between the ratings for male and female patients. Males were typically more satisfied with their health care than females. The average score for male respondents in their overall evaluation of TAMC was over 12 percent higher than that for the female respondents. This finding is in contrast to previous research efforts which have indicated that female patients are generally more satisfied with their health care than male patients (Cleary, Keroy, Karapanos, & McMullen, 1989).

Marital status was also found to significantly influence satisfaction levels. Married respondents generally had a lower overall evaluation of TAMC and felt that the health care delivery system could be improved. Widowed and divorced respondents, however, were more positive in their perception of the health care at TAMC.

The only significant relationship between satisfaction and branch of military service was with respondents from the Marines. While Marines appeared to be less satisfied with their health care,



significant differences were not found among the other branches of military service.

Health status was not found to be a significant factor in the satisfaction ratings. However, previous reports (Tessler & Mechanic, 1975; Oberst, 1984; Cleary, Keroy, Karapanos, & McMullen, 1989) concluded that the more unfavorable an individual's assessment of their health status the less likely the patient is to be satisfied with the care provided. This area may be worthy of closer examination in future studies.

#### Utilization Factors

The relationships between selected utilization variables and patient satisfaction levels were also investigated. Several utilization characteristics were shown to influence the overall evaluation and patient satisfaction. Patients who had been using TAMC for a longer period of time generally had a higher overall evaluation and appeared to be more satisfied than the patients who indicated that they had used the system for two years or less. However, no significant difference was discovered based on the number of times a patient had been admitted to the hospital or the number of outpatient visits. This finding is in contrast to the positive relationship reported by

Davies and Ware (1988) and Nelson-Wernick, Currey, Taylor, Woodbury, and Cantor (1981).

The frequency of seeing the same provider was the most important utilization factor influencing satisfaction. Respondents seeing the same provider more frequently were also more likely to be satisfied with the other aspects of the health care delivery system (e.g., access to care, interpersonal care, communications, technical quality of the provider, and the outcomes of their medical care). This supports the Weiss and Ramsey (1989) finding that patient satisfaction with care increases as the level of continuity increases.

The patient's level of satisfaction and overall evaluation appeared to vary significantly based on what clinic the respondent most frequently visited. However, the clinic data needs to be interpreted with caution since the survey did not request the respondent to rate the survey items based on a particular clinic. A comparison of the clinic results may prove useful in targeting key items which reflected high levels of patient satisfaction in clinics that received more favorable ratings and cross-fertilizing other clinics with these attributes. Further research in this area

may provide substantial results in the overall health care delivery system at TAMC.

### Survey Instrument

This discussion would not be complete without a brief discussion of the survey instrument itself. Based on the tremendous response and positive feedback received in this study, it appears that the patients surveyed earnestly accepted their roles as participants in improving the quality of care at TAMC. Even though the surveys were to remain anonymous, 52 respondents included their name, telephone number and/or address in the survey and invited further contact if there were any questions or additional information required concerning their responses. Although it is not possible to measure the effect of the announcement letter and follow-up letter, the response rate in this study was consistent with other research efforts that reported similar successes by employing announcement letters and follow-up efforts (Walker & Restuccia, 1984; Nelson, Hays, Larson, & Batalden, 1989).

The only shortcoming in the design of the survey instrument was the lack of an instruction page. Eighteen surveys were returned with several pages incomplete, and a number of surveys were returned

with individual items unanswered. In the cases where entire pages were left blank, it appeared that these pages were inadvertently overlooked during the completion of the instrument by the respondent. Individual items were presumably left unanswered when the respondents felt that they did not have a satisfactory answer for the question or failed to understand the question. An instruction page which indicated the number of pages, number of items to be completed, and instructed the respondent to complete all items may have alleviated these problems.

Based on comments from some of the respondents and the extensive use of the "Have Not Used" response category, it appeared that many of the respondents could not relate to the items used to measure the dimensions of Finances and Choice and Continuity. This apparent lack of association with these survey items may be due to the uniqueness of the military population examined in this study. Prior to any future use of the survey instrument, the questions which received a large number of responses in the "Have Not Used" category should be reviewed and perhaps reworded to make the items more applicable to the intended recipients of the survey.

The only criticism of the survey instrument by the respondents was with the rating scale. The rating scale utilized in this study has been shown to be a good predictor of behavioral responses (Ware & Hays, 1988). However, some of the respondents stated that it did not offer them enough response range to express their true level of sentiment about some aspects of care they were being asked to evaluate. In reviewing the response scale, if the respondent felt that the rating of "Good" represented the neutral point on the scale, then the response scale would provide an equal number of responses above and below this neutral point. However, if the respondent felt that the rating of "Fair" represented the neutral point on the scale, then the present rating scale provided three positive responses, but only one negative response. Future surveys should consider using a 7-point scale which would increase the range and variability of the responses.

The survey instrument appeared to be highly reliable and the alpha estimates suggested a good reflection of the consistency of subject response on the items. Examination of the inter-item correlations, however, showed extensive redundancy

in the items used to measure Finance, Interpersonal Care, Communications, Choice and Continuity, Technical Quality, and Outcomes. Any future use of this survey instrument should be preceded by a thorough examination of individual items to reduce the redundancy in the survey questions.

### CONCLUSIONS AND RECOMMENDATIONS

TQM involves creating an organizational structure that uses feedback from customers to focus on ways to better meet the consumer's needs and expectations. Therefore, organizations must develop reliable means to determine the factors that have the potential to make a difference in the customer's opinion of the quality and satisfaction with a good or service. Steiber and Krowinski (1990) report that more than 90 percent of all hospitals use some kind of survey to measure patient satisfaction. Of these hospitals, more than four out of five report that they use the survey instrument to help assess the quality of care.

The purpose of this study was twofold. First, it was to assess the current level of patient satisfaction at TAMC, and, secondly, to determine the extent to which various aspects of the health care delivery system are contributing to the satisfaction of patients. Through the use of a comprehensive, reliable survey instrument, this study successfully distinguished the factors which have the greatest influence on patient satisfaction and identified major areas for quality improvement. As the first large scale analysis of patient satisfaction at TAMC,

this study also provides baseline data from which to measure the effectiveness of quality improvement activities.

Based on this study, it appears that the patients usually relate satisfaction with the health care provided to their interaction with the hospital staff, the caring nature of their providers, and the information they receive. These are alterable aspects of the health care delivery system which management can readily influence. Several patient characteristics were also shown to influence their satisfaction level. The finding that the patients who had used TAMC for a longer time were normally more satisfied suggests that some learning occurs during usage. It is possible that patients who are more familiar with or have more knowledge about the facility perceive it in a more favorable way.

The variables of race, gender, age, marital status, beneficiary category, pay grade, and branch of military service had significant effects on perception of care. Little can be done about these factors unless the variables reflect discriminatory patterns within the facility. This study did not discover any significant discriminatory practices within TAMC.



While nothing can be done to change these factors, they indicate areas where additional emphasis might be placed to offset negative perceptions. Additionally, human relations training may make the staff more aware of differences in demographic factors and prevent the appearance of discriminatory practices within the organization.

The results of this study suggest that while the majority of patients are satisfied with the health care provided at TAMC, there are several areas which can be improved. These areas include making appointments by phone, continuity of care, waiting time to see a provider after arriving for a scheduled appointment, and friendliness and courtesy of the medical and administrative staff. While the appointment system and waiting times for a scheduled appointment did not appear to influence patient satisfaction substantially, they do appear to be dissatisfiers with the health care delivery system. This study supports the contention that patient satisfaction increases as the level of continuity of care increases. If this is true, it would be relevant for the institution to commit itself to provide continuity of care to promote satisfaction by creating an environment where patients are assigned

to a primary care provider or group of providers. The friendliness and courtesy of the medical and administrative staff can contribute greatly to both the patient's satisfaction level and patient's perception of their health care outcome. Efforts should be taken throughout the organization to improve the interpersonal relations between the staff and patients.

This survey and study also provide three potentially dynamic uses in the future. This study may be used as a diagnostic tool to identify potential management problems, as a management training evaluation instrument, and to enhance public relations. Future surveys need to be administered routinely to enable the hospital's management to monitor patients' satisfaction ratings and compare these ratings over different periods. This will allow management to identify potential problem areas and take immediate corrective action. As a management training evaluation instrument, this and future surveys can be used to measure specific behavioral objectives and establish employee training goals. Lastly, this and future surveys can to enhance public relations by including the patients in the organization's quality improvement

process. Survey results should also be shared with the patient population to show areas where the hospital is doing well and the areas that management intends to improve based on the survey results.

The results of poor quality are rework, waste of resources, and customer dissatisfaction. Labovitz (1991) estimates that the cost of poor quality can run as high as 30 percent of gross sales in a service organization. While TAMC does not generate revenues as such, it does have to operate within a given budget. If the estimated cost of poor quality stated by Labovitz (1991) was applied to TAMC's annual operating budget of \$93.5 million, the value of quality improvements at TAMC could be staggering.

TQM offers a comprehensive strategy to contain costs and improve customer satisfaction by determining where improvements can be made and then focusing the organization on improving the quality of its goods or services. This study offers TAMC the potential to contain costs, conserve resources, improve clinical outcomes, and concentrate its quality improvement efforts on the areas that will have the greatest effect on its patients' overall opinion and satisfaction. However, the success of this study will come only from

a management structure that uses the feedback from the patient satisfaction survey to focus on improvements in the most desirable direction. Evaluation alone cannot assure improvement to the quality of care. An assessment of customers' perceptions can only provide data to prepare prescriptions for action to improve services that are in some way beneficial to patients as well as the health care system as a whole. Therefore, this study serves only as a starting point to improve the quality of the health care delivery system at Tripler Army Medical Center.

## REFERENCES

- Abramowitz, S., Cote, A. A., & Berry, E. (1987).  
Analyzing patient satisfaction: a multianalytic  
approach. Quality Review Bulletin, 13(4), 122-130.
- Berger, S., & Sudman, S. K. (1991). Making total  
quality management work. Healthcare Executive, 6(2),  
22-25.
- Berry, T. H. (1990). Managing the total quality  
transformation. New York: McGraw-Hill, Inc.
- Casurella, J. (1989). Managing a "total quality"  
program. Federation of American Health Systems  
Review, 22(4), 31-33.
- Cleary, P. D., Keroy L., Karapanos, G., & McMullen W.  
(1989). Patient assessments of hospital care.  
Quality Review Bulletin, 15(6), 172-179.
- Cleary, P. D., & McNeil, B. J. (1988). Patient  
satisfaction as an indicator of quality care.  
Inquiry, 25(1), 25-36.
- Cronbach, L. J. (1951). Coefficient alpha and the  
internal structure of tests. Psychometrika, 16,  
297-334.
- Davies, A. R., & Ware, J. E., Jr. (1988). Involving  
consumers in quality of care assessment: Do they  
provide valid information? Health Affairs, 7(1), 33-48.

- Davis, D., & Hobbs, G. (1989). Measuring outpatient satisfaction with rehabilitation services. Quality Review Bulletin, 15(6), 192-197.
- Deming, W. E. (1986). Out of the crisis. Cambridge, MA: Massachusetts Institute of Technology.
- Donabedian, A. (1980). The definition of quality and approaches to its assessment. Ann Arbor, MI: Health Administration Press.
- Ehreth, J. (1993). Hospital survival in a competitive environment: The competitive constituency model. Hospital and Health Services Administration, 38(1), 23-44.
- Fleming, G. V. (1979). Using consumer evaluations of health care. Hospital Progress, 60(8), 54-68.
- Fleming, G. V. (1981). Hospital structure and consumer satisfaction. Health Services Research, 16(1), 43-63.
- Hinshaw, A. S., & Atwood, J. R. (1982). A patient satisfaction instrument: Precision by replication. Nursing Research, 31(3), 170-175.
- Hulka, B. S., Zyzanski, S. J., Cassel, J. C., & Thompson, S. J. (1970). Scale for the measurement of attitudes toward physicians and primary medical care. Medical Care, 8(5), 429-436.

- Kerlinger, F. N. (1986). Foundations of behavioral research. Orlando, FL: Holt, Rinehart and Winston.
- Labovitz, G. H. (1991). Beyond the total quality management mystique. Healthcare Executive, 6(2), 15-17.
- Lanning, J. A., & O'Connor, S. J. (1990). The health care quality quagmire: Some signposts. Hospital and Health Services Administration, 35(1), 39-54.
- Lemke, R. W. (1987). Identifying consumer satisfaction through patient surveys. Health Progress, 68(2), 56-58.
- Likert, R. A. (1932). A technique for the measurement of attitudes. Archives of Psychology, 140, 1-55.
- Locker, D., & Dunt, D. (1978). Theoretical and methodological issues in sociological studies of consumer satisfaction with medical care. Social Science and Medicine, 12, 283-292.
- McMillan, J. R. (1987). Measuring consumer satisfaction to improve quality of care. Health Progress, 68(2), 54-55, 76-80.
- Nelson, E. C., Hays, R. D., Larson, C., & Batalden, P. B. (1989). The patient judgment system: Reliability and validity. Quality Review Bulletin, 15(6), 185-191.

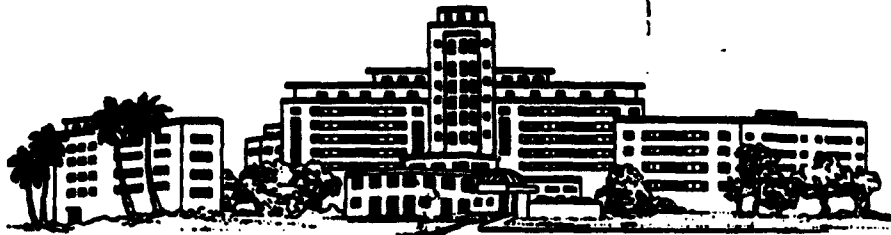
- Nelson-Wernich, E., Currey, H. S., Taylor, P. W., Woodbury, M., & Cantor, A. (1981). Patient perception of medical care. Health Care Management Review, 6(1), 65-72.
- Oberst, M. T. (1984). Patients' perceptions of care: Measurement of quality and satisfaction. Cancer, 53(10), 2366-2375.
- O'Leary, D. (1992). The JCAHO applauds TQM. Health Systems Review, 25(3), 19-23.
- Press, I., Ganey, R. F., & Malone, M. P. (1991). Satisfied patient can spell financial well-being. Healthcare Financial Management, 45(2), 34-42.
- Roberts, J. G., & Tugwell, P. (1987). Comparison of questionnaires determining patient satisfaction with medical care. Health Services Research, 22(5), 637-654.
- Soeken, K. L. (1985). Critiquing research: Steps for complete evaluation of an article. American Operating Room Nurse Journal, 41, 882-893.
- Steiber, S. R., & Krowinski, W. J. (1990). Measuring and managing patient satisfaction. Chicago, IL: American Hospital Publishing, Inc.



- Stevens, J. (1992). Applied multivariate statistics for the Social Sciences. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Tessler R., & Mechanic D. (1975). Consumer satisfaction with prepaid group practice: A comparative study. Journal of Health and Social Behavior, 16, 95-117.
- Walker, A. H., & Restuccia, J. D. (1984). Obtaining information on patient satisfaction with hospital care: Mail versus telephone. Health Services Research, 19(3), 291-306.
- Ware, J. E., Jr. (1981). How to survey patient satisfaction. Drug Intelligence and Clinical Pharmacy, 15(11), 892-899.
- Ware, J. E., Jr., Davies-Avery, A., & Stewart, A. L. (1978). The measurement and meaning of patient satisfaction. Health and Medical Care Services Review, 1, 2-15.
- Ware, J. E., Jr., & Hays, R. D. (1988). Methods for measuring patient satisfaction with specific medical encounter. Medical Care, 26, 393-402.
- Weiss, G. L., & Ramsey, C. A. (1989). Regular source of primary medical care and patient satisfaction. Quality Review Bulletin, 15(6), 180-184.

**APPENDIX 1.**

**TRIPLER ARMY MEDICAL CENTER  
PATIENT SATISFACTION  
SURVEY**



TRIPLER ARMY MEDICAL CENTER  
PATIENT SATISFACTION  
SURVEY

Dear Tripler Patient:

We at Tripler Army Medical Center are committed to providing you the highest quality health care possible, and your opinion is important to us as we look for ways to improve. Please take a few moments to complete and return this survey. Your honest and candid comments will help us evaluate how well we are meeting your needs and provide us with valuable information to determine where we can make necessary improvements or changes.

If you have any questions about this survey, please contact Major Dorothy Smith, Administrative Resident, at (808) 433-6439 or by writing to Commander, Tripler Army Medical Center, ATTN: HSHK-DCA-A, Tripler, HI 96859.

Thank you for your time and participation in this survey. Your comments are greatly appreciated as we strive to excel.

Sincerely,

A handwritten signature in cursive script that reads "James E. Hastings".

James E. Hastings  
Brigadier General, Medical Corps  
Commanding General

## PATIENT SATISFACTION SURVEY

*Tripler Army Medical Center (TAMC) is looking for ways to improve the quality of the health care we provide. The purpose of this survey is to document how you feel about the medical care you receive at TAMC. Please answer all questions. Your answers will be held in strictest confidence. Mahalo.*

1. How long have you personally used TAMC for health care?  
(Please circle your response.)

- 1 Less than one year
- 2 One to two years
- 3 Three or more years

2. Overall, how would you evaluate the health care at TAMC.  
(Please circle the response that best describes your opinion.)

- 1 Poor
- 2 Fair
- 3 Good
- 4 Very Good
- 5 Excellent

3. What percent of your health care do you receive through the following sources:

|                                     |         |
|-------------------------------------|---------|
| Tripler Army Medical Center (TAMC)  | _____ % |
| Other Military Treatment Facilities | _____ % |
| CHAMPUS Prime, Extra or Standard    | _____ % |
| Private Insurance or Other Sources  | _____ % |
|                                     | 100 %   |

**Thinking about your own health care, please circle the number using the following response scale that best expresses your opinion of Tripler Army Medical Center (TAMC):**

**1 = Poor**

**2 = Fair**

**3 = Good**

**4 = Very Good**

**5 = Excellent**

**6 = Have Not Used**

**ACCESS - Arranging For and Getting Care.**

|   |          |          |          |          |          |          |
|---|----------|----------|----------|----------|----------|----------|
| <b>4. Convenience of location of TAMC</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>5. Hours of operation of services at TAMC</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>6. Access to specialty care if you need it</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>7. Access to hospital care if you need it</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>8. Access to medical care in an emergency</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>9. Arrangements for making appointments for medical care by phone</b>                                    | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>10. Length of time you wait at the office to see the doctor</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>11. Length of time you wait between making an appointment for routine care and the day of your visit</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>12. Availability of medical information or advice by phone</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
| <b>13. Access to medical care whenever you need it</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |

1 - Poor; 2 - Fair; 3 - Good; 4 - Very Good; 5 - Excellent  
 (If you have not used a particular service, circle 6 - Have Not Used)

**PHYSICAL ENVIRONMENT OF FACILITY**

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 14. Overall cleanliness of the facility                              | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Location of services and clinics<br>you most frequently visit    | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. Comfort and pleasantness of<br>waiting rooms and treatment areas | 1 | 2 | 3 | 4 | 5 | 6 |

**FINANCES**

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 17. Protection you have against<br>hardship due to medical expenses                 | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. Arrangements for you to get medical<br>care you need without financial problems | 1 | 2 | 3 | 4 | 5 | 6 |

**INTERPERSONAL CARE**

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 19. Friendliness and courtesy shown to<br>you by doctors and medical staff                         | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. Friendliness and courtesy shown to<br>you by the administrative staff<br>(e.g., receptionists) | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. Personal interest in you and your<br>medical problem   | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. Respect shown to you and attention<br>to your privacy  | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. Reassurance and support offered to<br>you by doctors and medical staff                         | 1 | 2 | 3 | 4 | 5 | 6 |
| 24. Amount of time you have with doctors<br>and medical staff during a visit                       | 1 | 2 | 3 | 4 | 5 | 6 |

1 - Poor, 2 - Fair, 3 - Good; 4 - Very Good; 5 - Excellent  
(If you have not used a particular service, circle 6 - Have Not Used)

### **COMMUNICATIONS**

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 25. Explanations of medical procedures and tests                | 1 | 2 | 3 | 4 | 5 | 6 |
| 26. Advice you get about ways to avoid illness and stay healthy | 1 | 2 | 3 | 4 | 5 | 6 |
| 27. Attention given to what you say                             | 1 | 2 | 3 | 4 | 5 | 6 |

### **CHOICE AND CONTINUITY**

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 28. Number of doctors to choose from            | 1 | 2 | 3 | 4 | 5 | 6 |
| 29. Ease of seeing the doctor of your choice    | 1 | 2 | 3 | 4 | 5 | 6 |
| 30. Arrangements for choosing a personal doctor | 1 | 2 | 3 | 4 | 5 | 6 |

### **TECHNICAL QUALITY**

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 31. Thoroughness of examination and accuracy of diagnosis  | 1 | 2 | 3 | 4 | 5 | 6 |
| 32. Skill, experience, and training of doctors             | 1 | 2 | 3 | 4 | 5 | 6 |
| 33. Skill, experience, and training of other staff members | 1 | 2 | 3 | 4 | 5 | 6 |
| 34. Thoroughness of treatment                              | 1 | 2 | 3 | 4 | 5 | 6 |

### **OUTCOMES**

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 35. The outcomes of your medical care (how much are you helped) | 1 | 2 | 3 | 4 | 5 | 6 |
| 36. Overall quality of care and services                        | 1 | 2 | 3 | 4 | 5 | 6 |

**Thinking about your own health care, please circle the number using the following rating scale that best indicates how much you agree or disagree with each statement about Tripler Army Medical Center (TAMC):**

**PLEASE NOTE THAT THE RATING SCALE HAS CHANGED.**

- 1 - Strongly Agree**
- 2 - Agree**
- 3 - Not Sure**
- 4 - Disagree**
- 5 - Strongly Disagree**

|  |          |          |          |          |          |
|--|----------|----------|----------|----------|----------|
| <b>37. I am very satisfied with the medical care I receive at TAMC</b>                         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>38. There are some things about the medical care I receive at TAMC that could be better</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>39. The medical care I have been receiving at TAMC is just about perfect</b>                | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| <b>40. I am dissatisfied with some things about the medical care I receive at TAMC</b>         | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |



*For each of the following statements, please circle the number of the answer that best indicates your response.*

41. If you do not receive the majority of your health care at TAMC, which one reason best explains why not.

- 1 TAMC lacks the services I need
- 2 TAMC is not conveniently located
- 3 I am not treated courteously
- 4 Providers are not thorough in their examinations
- 5 It seems I see a different provider each time
- 6 My schedule conflicts with appointment times offered
- 7 It is too difficult to get an appointment
- 8 I live too far away from TAMC
- 9 It takes too long to be seen
- 0 Other (please explain) \_\_\_\_\_

N/A Majority of care received at TAMC

42. During the last 12 months, how many admissions (stayed OVERNIGHT at TAMC) did you and other members of your family have for medical care? (Please circle two responses.)

You Personally

- 1 None
- 2 One
- 3 Two to four
- 4 Five to nine
- 5 Ten or more

Other Family Members

- 1 None
  - 2 One
  - 3 Two to four
  - 4 Five to nine
  - 5 Ten or more
- N/A No other family members

43. During the last 12 months, how many outpatient visits did you and other members of your family have at TAMC? (Please circle two responses.)

You Personally

- 1 None
- 2 One visit
- 3 Two to four visits
- 4 Five to nine visits
- 5 Ten or more visits

Other Family Members

- 1 None
  - 2 One visit
  - 3 Two to four visits
  - 4 Five to nine visits
  - 5 Ten or more visits
- N/A No other family members

4. How long do you usually have to wait between the time you make an appointment for care and the day you actually see the provider at TAMC?

- 1 Two days or less
- 2 Three days to one week
- 3 One to two weeks
- 4 Three to four weeks
- 5 Five to six weeks
- 6 Seven or more weeks
- 7 Does not apply, I have not used

5. How long do you usually have to wait to see your provider when you have an appointment for care at TAMC?

- 1 Less than 10 minutes
- 2 10 to 15 minutes
- 3 16 to 30 minutes
- 4 31 to 45 minutes
- 5 46 to 60 minutes
- 6 More than 60 minutes
- 7 Does not apply, I have not used

6. When you go for medical care, how often do you see the same doctor at TAMC?

- 1 Always
- 2 Most of the time
- 3 Sometimes
- 4 Rarely
- 5 Never

7. What clinical specialties do you most frequently visit at TAMC?  
Please circle all that apply.) {

- |                         |                      |
|-------------------------|----------------------|
| 1 General Surgery       | 6 Mental Health      |
| 2 Internal Medicine     | 7 Cardiology         |
| 3 Pediatrics            | 8 Ear, Nose & Throat |
| 4 Obstetrics/Gynecology | 9 Optometry          |
| 5 Orthopedics           | 10 Other _____       |

## **PERSONAL INFORMATION**

*The following information is requested for comparison of group responses and only group summaries will be reported in our findings.*

48. What is your personal health status?

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor

49. What is your age group as of your last birthday?

- 1 Less than 21 years
- 2 21 - 29 years
- 3 30 - 39 years
- 4 40 - 49 years
- 5 50 - 59 years
- 6 60 years or more

50. Are you male or female?

- 1 Male
- 2 Female

51. Which of the following best describes your racial background?

- 1 White
- 2 Black
- 3 Asian
- 4 Pacific Islander
- 5 American Indian, Aleut, Eskimo

52. Are you of Hispanic or Spanish origin or descent?

- 1 Yes
- 2 No

53. Specify your own pay grade if you are active duty or retired or the pay grade of your sponsor if you are a family member. (Please circle only one response).

- |      |        |        |
|------|--------|--------|
| 1 E1 | 10 WO1 | 14 01  |
| 2 E2 | 11 CW2 | 15 02  |
| 3 E3 | 12 CW3 | 16 03  |
| 4 E4 | 13 CW4 | 17 04  |
| 5 E5 |        | 18 05  |
| 6 E6 |        | 19 06  |
| 7 E7 |        | 20 07+ |
| 8 E8 |        |        |
| 9 E9 |        |        |

54. Specify your branch of military service if you are active duty or retired or the branch of your sponsor if you are a family member.

- 1 Army
- 2 Navy
- 3 Air Force
- 4 Marine
- 5 Coast Guard

55. Which category of beneficiary best describes you?

- 1 Service member on active duty
- 2 Family member of active duty service member
- 3 Retired service member
- 4 Family member of retired service member
- 5 Family member of deceased service member
- 6 Veteran Affairs (VA) beneficiary

56. Which of the following best describes your current marital status?

- 1 Never married, single
- 2 Married
- 3 Separated
- 4 Divorced
- 5 Widowed

### **OPTIONAL QUESTIONS**

*We are interested in what you think. The following questions are optional but we would appreciate any additional information you would like to provide us or comments you would like to make.*

**57. What two things do you like the most about TAMC?**

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**58. What two things might we improve at TAMC?**

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**59. Any additional comments you would like to make.**

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*Thank You for you cooperation  
and for helping us to care!*

**Please place in the enclosed self-addressed envelope and  
mail to Commander, Tripler Army Medical Center,  
ATTN: HSEK-DCA-A (MAJ Smith), Tripler, HI 96859.**

APPENDIX 2.

FREQUENCY DISTRIBUTION TABLES  
AND  
HISTOGRAMS

TABLE 4-1. FREQUENCY DISTRIBUTIONS FOR CRITERION VARIABLES

SURVEY QUESTION 2. Overall, how would you evaluate the health care at TAMC.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 14        | 2.4     | 2.4              | 2.4                   |
| 2.0             | 84        | 14.6    | 14.6             | 17.1                  |
| 3.0             | 172       | 30.0    | 30.0             | 47.0                  |
| 4.0             | 205       | 35.7    | 35.7             | 82.8                  |
| 5.0             | 99        | 17.2    | 17.2             | 100.0                 |
| UNSPECIFIED     | 0         |         |                  |                       |
| <hr/>           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 574

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 14 ==           |
| 2.0                    | 84 =====        |
| 3.0                    | 172 =====       |
| 4.0                    | 205 =====       |
| 5.0                    | 99 =====        |

\*SURVEY QUESTION 37. I am very satisfied with the medical care I receive at TAMC.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 20        | 3.5     | 3.5              | 3.5                   |
| 2.0             | 63        | 11.0    | 11.0             | 14.5                  |
| 3.0             | 64        | 11.1    | 11.2             | 25.7                  |
| 4.0             | 262       | 45.6    | 45.7             | 71.4                  |
| 5.0             | 164       | 28.6    | 28.6             | 100.0                 |
| UNSPECIFIED     | 1         | .2      |                  |                       |
| <hr/>           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 573

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 20 ==           |
| 2.0                    | 63 =====        |
| 3.0                    | 64 =====        |
| 4.0                    | 262 =====       |
| 5.0                    | 164 =====       |

TABLE 4-1 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR CRITERION VARIABLES

\*SURVEY QUESTION 38. There are some things about the medical care I receive at TAMC that could be better.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 22        | 3.8     | 3.9              | 3.9                   |
| 2.0             | 65        | 11.3    | 11.4             | 15.3                  |
| 3.0             | 85        | 14.8    | 14.9             | 30.2                  |
| 4.0             | 236       | 41.1    | 41.3             | 71.5                  |
| 5.0             | 163       | 28.4    | 28.5             | 100.0                 |
| UNSPECIFIED     | 3         | .5      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 571

| =====CLASS LIMITS===== | FREQUENCY |       |
|------------------------|-----------|-------|
| 1.0                    | 22        | ===== |
| 2.0                    | 65        | ===== |
| 3.0                    | 85        | ===== |
| 4.0                    | 236       | ===== |
| 5.0                    | 163       | ===== |

\*SURVEY QUESTION 39. The medical care I have been receiving at TAMC is just about perfect.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 49        | 8.5     | 8.6              | 8.6                   |
| 2.0             | 139       | 24.2    | 24.3             | 32.9                  |
| 3.0             | 118       | 20.6    | 20.6             | 53.5                  |
| 4.0             | 188       | 32.8    | 32.9             | 86.4                  |
| 5.0             | 78        | 13.6    | 13.6             | 100.0                 |
| UNSPECIFIED     | 2         | .3      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 572

| =====CLASS LIMITS===== | FREQUENCY |       |
|------------------------|-----------|-------|
| 1.0                    | 49        | ===== |
| 2.0                    | 139       | ===== |
| 3.0                    | 118       | ===== |
| 4.0                    | 188       | ===== |
| 5.0                    | 78        | ===== |



TABLE 4-1 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR CRITERION VARIABLES

| *SURVEY QUESTION 40. I am dissatisfied with some things about the medical care I receive at TAMC. |                 |         |               |                    |
|---|-----------------|---------|---------------|--------------------|
| *****VALUE*****   | FREQUENCY       | PERCENT | VALID PERCENT | CUMULATIVE PERCENT |
| 1.0   | 69              | 12.0    | 12.1          | 12.1               |
| 2.0   | 156             | 27.2    | 27.4          | 39.5               |
| 3.0   | 59              | 10.3    | 10.4          | 49.9               |
| 4.0   | 186             | 32.4    | 32.6          | 82.5               |
| 5.0   | 100             | 17.4    | 17.5          | 100.0              |
| UNSPECIFIED   | 4               | .7      |               |                    |
| TOTAL   | 574             | 100.0   | 100.0         |                    |
| VALID CASES 570   |                 |         |               |                    |
| *****CLASS LIMITS*****  | FREQUENCY ..... |         |               |                    |
| 1.0   | 69              | =====   |               |                    |
| 2.0   | 156             | =====   |               |                    |
| 3.0   | 59              | =====   |               |                    |
| 4.0   | 186             | =====   |               |                    |
| 5.0   | 100             | =====   |               |                    |

\*Survey questions 37, 38, 39, and 40 were reflected during data analysis so that  
 5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree.

TABLE 4-2. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - ACCESS TO CARE

## SURVEY QUESTION 4. Convenience of location of TAMC.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 27        | 4.7     | 4.7              | 4.7                   |
| 2.0             | 78        | 13.6    | 13.7             | 18.5                  |
| 3.0             | 143       | 24.9    | 25.1             | 43.6                  |
| 4.0             | 155       | 27.0    | 27.2             | 70.8                  |
| 5.0             | 166       | 28.9    | 29.2             | 100.0                 |
| HAVE NOT USED   | 5         | .9      |                  |                       |
| UNSPECIFIED     | 0         |         |                  |                       |
| <hr/>           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 569

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 27        | ===== |
| 2.0                    | 78        | ===== |
| 3.0                    | 143       | ===== |
| 4.0                    | 155       | ===== |
| 5.0                    | 166       | ===== |

## SURVEY QUESTION 5. Hours of operation of services at TAMC.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 13        | 2.3     | 2.3              | 2.3                   |
| 2.0             | 57        | 9.9     | 10.1             | 12.4                  |
| 3.0             | 166       | 28.9    | 29.3             | 41.7                  |
| 4.0             | 185       | 32.2    | 32.7             | 74.4                  |
| 5.0             | 145       | 25.3    | 25.6             | 100.0                 |
| HAVE NOT USED   | 3         | 0.5     |                  |                       |
| UNSPECIFIED     | 5         | 0.9     |                  |                       |
| <hr/>           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 566

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 13        | ==    |
| 2.0                    | 57        | ===== |
| 3.0                    | 166       | ===== |
| 4.0                    | 185       | ===== |
| 5.0                    | 145       | ===== |

TABLE 4-2 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - ACCESS TO CARE

SURVEY QUESTION 6. Access to specialty care if you need it.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 49        | 8.5     | 9.8              | 9.8                   |
| 2.0             | 77        | 13.4    | 15.3             | 25.1                  |
| 3.0             | 103       | 17.9    | 20.5             | 45.6                  |
| 4.0             | 141       | 24.6    | 28.1             | 73.7                  |
| 5.0             | 132       | 23.0    | 26.3             | 100.0                 |
| HAVE NOT USED   | 66        | 11.5    |                  |                       |
| UNSPECIFIED     | 6         | 1.0     |                  |                       |
| -----           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 502

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 49        | ===== |
| 2.0                    | 77        | ===== |
| 3.0                    | 103       | ===== |
| 4.0                    | 141       | ===== |
| 5.0                    | 132       | ===== |

SURVEY QUESTION 7. Access to hospital care if you need it.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 14        | 2.4     | 3.0              | 3.0                   |
| 2.0             | 41        | 7.1     | 8.6              | 11.6                  |
| 3.0             | 119       | 20.7    | 25.1             | 36.7                  |
| 4.0             | 150       | 26.1    | 31.6             | 68.4                  |
| 5.0             | 150       | 26.1    | 31.6             | 100.0                 |
| HAVE NOT USED   | 94        | 16.4    |                  |                       |
| UNSPECIFIED     | 6         | 1.0     |                  |                       |
| -----           |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 474

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 14        | ==    |
| 2.0                    | 41        | ===== |
| 3.0                    | 119       | ===== |
| 4.0                    | 150       | ===== |
| 5.0                    | 150       | ===== |

TABLE 4-2 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - ACCESS TO CARE

## SURVEY QUESTION 8. Access to medical care in an emergency.

| *****VALUE***** | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 36        | 6.3     | 8.0              | 8.0                   |
| 2.0             | 60        | 10.5    | 13.3             | 21.3                  |
| 3.0             | 79        | 13.8    | 17.6             | 38.9                  |
| 4.0             | 117       | 20.4    | 26.0             | 64.9                  |
| 5.0             | 158       | 27.5    | 35.1             | 100.0                 |
| HAVE NOT USED   | 122       | 21.3    |                  |                       |
| UNSPECIFIED     | 2         | .3      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 450

| *****CLASS LIMITS***** | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 36              |
| 2.0                    | 60              |
| 3.0                    | 79              |
| 4.0                    | 117             |
| 5.0                    | 158             |

## SURVEY QUESTION 9. Arrangements for making appointments for medical care by phone.

| *****VALUE***** | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 162       | 28.2    | 29.2             | 29.2                  |
| 2.0             | 129       | 22.5    | 23.2             | 52.4                  |
| 3.0             | 119       | 20.7    | 21.4             | 73.9                  |
| 4.0             | 91        | 15.9    | 16.4             | 90.3                  |
| 5.0             | 54        | 9.4     | 9.7              | 100.0                 |
| HAVE NOT USED   | 17        | 3.0     |                  |                       |
| UNSPECIFIED     | 2         | .3      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 555

| *****CLASS LIMITS***** | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 162             |
| 2.0                    | 129             |
| 3.0                    | 119             |
| 4.0                    | 91              |
| 5.0                    | 54              |

TABLE 4-2 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - ACCESS TO CARE

SURVEY QUESTION 10. Length of time you wait at the office to see the doctor.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 82        | 14.3    | 14.3             | 14.3                  |
| 2.0             | 138       | 24.0    | 24.1             | 38.4                  |
| 3.0             | 173       | 30.1    | 30.2             | 68.6                  |
| 4.0             | 120       | 20.9    | 20.9             | 89.5                  |
| 5.0             | 60        | 10.5    | 10.5             | 100.0                 |
| HAVE NOT USED   | 1         | .2      |                  |                       |
| UNSPECIFIED     | 0         |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 573

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 82   =====      |
| 2.0                    | 138   =====     |
| 3.0                    | 173   =====     |
| 4.0                    | 120   =====     |
| 5.0                    | 60   =====      |

SURVEY QUESTION 11. Length of time you wait between making an appointment for routine care and the day of your visit.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 92        | 16.0    | 16.6             | 16.6                  |
| 2.0             | 147       | 25.6    | 26.5             | 43.1                  |
| 3.0             | 160       | 27.9    | 28.9             | 72.0                  |
| 4.0             | 106       | 18.5    | 19.1             | 91.2                  |
| 5.0             | 49        | 8.5     | 8.8              | 100.0                 |
| HAVE NOT USED   | 19        | 3.3     |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 554

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 92   =====      |
| 2.0                    | 147   =====     |
| 3.0                    | 160   =====     |
| 4.0                    | 106   =====     |
| 5.0                    | 49   =====      |

TABLE 4-2 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - ACCESS TO CARE

SURVEY QUESTION 12. Availability of medical information or advice by phone.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 85        | 14.8    | 20.6             | 20.6                  |
| 2.0             | 82        | 14.3    | 19.9             | 40.5                  |
| 3.0             | 99        | 17.2    | 24.0             | 64.6                  |
| 4.0             | 88        | 15.3    | 21.4             | 85.9                  |
| 5.0             | 58        | 10.1    | 14.1             | 100.0                 |
| HAVE NOT USED   | 159       | 27.7    |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 412

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 85   =====      |
| 2.0                    | 82   =====      |
| 3.0                    | 99   =====      |
| 4.0                    | 88   =====      |
| 5.0                    | 58   =====      |

SURVEY QUESTION 13. Access to medical care whenever you need it.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 33        | 5.7     | 6.0              | 6.0                   |
| 2.0             | 105       | 18.3    | 19.1             | 25.1                  |
| 3.0             | 152       | 26.5    | 27.7             | 52.8                  |
| 4.0             | 142       | 24.7    | 25.9             | 78.7                  |
| 5.0             | 117       | 20.4    | 21.3             | 100.0                 |
| HAVE NOT USED   | 22        | 3.8     |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 549

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 33   =====      |
| 2.0                    | 105   =====     |
| 3.0                    | 152   =====     |
| 4.0                    | 142   =====     |
| 5.0                    | 117   =====     |

# Customer Assessment

116

TABLE 4-3. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - PHYSICAL ENVIRONMENT

SURVEY QUESTION 14. Overall cleanliness of the facility.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 2         | .3      | .4               | .4                    |
| 2.0             | 14        | 2.4     | 2.5              | 2.8                   |
| 3.0             | 63        | 11.0    | 11.1             | 13.9                  |
| 4.0             | 198       | 34.5    | 34.9             | 48.8                  |
| 5.0             | 291       | 50.7    | 51.2             | 100.0                 |
| HAVE NOT USED   | 5         | .9      |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
|                 |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 568

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 2         | =     |
| 2.0                    | 14        | ==    |
| 3.0                    | 63        | ===== |
| 4.0                    | 198       | ===== |
| 5.0                    | 291       | ===== |

SURVEY QUESTION 15. Location of services and clinics you most frequently visit.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 4         | .7      | .7               | .7                    |
| 2.0             | 24        | 4.2     | 4.2              | 5.0                   |
| 3.0             | 145       | 25.3    | 25.7             | 30.6                  |
| 4.0             | 215       | 37.5    | 38.1             | 68.7                  |
| 5.0             | 177       | 30.8    | 31.3             | 100.0                 |
| HAVE NOT USED   | 6         | 1.0     |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 565

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 4         | =     |
| 2.0                    | 24        | ==    |
| 3.0                    | 145       | ===== |
| 4.0                    | 215       | ===== |
| 5.0                    | 177       | ===== |

# Customer Assessment

117

TABLE 4-3 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - PHYSICAL ENVIRONMENT

| SURVEY QUESTION 16. Comfort and pleasantness of waiting rooms and treatment areas. |                 |         |                  |                       |
|--|-----------------|---------|------------------|-----------------------|
| *****VALUE*****  | FREQUENCY       | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
| 1.0  | 8               | 1.4     | 1.4              | 1.4                   |
| 2.0  | 43              | 7.5     | 7.5              | 8.9                   |
| 3.0  | 122             | 21.3    | 21.4             | 30.4                  |
| 4.0  | 217             | 37.8    | 38.1             | 68.4                  |
| 5.0  | 180             | 31.4    | 31.6             | 100.0                 |
| HAVE NOT USED  | 4               | .7      |                  |                       |
| UNSPECIFIED  | 0               |         |                  |                       |
| TOTAL  | 574             | 100.0   | 100.0            |                       |
| VALID CASES 570  |                 |         |                  |                       |
| *****CLASS LIMITS*****   | FREQUENCY ..... |         |                  |                       |
| 1.0  | 8               | =       |                  |                       |
| 2.0  | 43              | =====   |                  |                       |
| 3.0  | 122             | =====   |                  |                       |
| 4.0  | 217             | =====   |                  |                       |
| 5.0  | 180             | =====   |                  |                       |



TABLE 4-4. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - FINANCES

SURVEY QUESTION 17. Protection you have against hardship due to medical expenses.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 12        | 2.1     | 3.1              | 3.1                   |
| 2.0             | 15        | 2.6     | 3.9              | 7.0                   |
| 3.0             | 49        | 8.5     | 12.7             | 19.7                  |
| 4.0             | 119       | 20.7    | 30.9             | 50.6                  |
| 5.0             | 190       | 33.1    | 49.4             | 100.0                 |
| HAVE NOT USED   | 179       | 31.2    |                  |                       |
| UNSPECIFIED     | 10        | 1.7     |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 385

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 12 ==           |
| 2.0                    | 15 ==           |
| 3.0                    | 49 =====        |
| 4.0                    | 119 =====       |
| 5.0                    | 190 =====       |

SURVEY QUESTION 18. Arrangements for you to get the medical care you need without financial problems.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 11        | 1.9     | 2.9              | 2.9                   |
| 2.0             | 19        | 3.3     | 5.0              | 7.9                   |
| 3.0             | 40        | 7.0     | 10.6             | 18.5                  |
| 4.0             | 121       | 21.1    | 32.0             | 50.5                  |
| 5.0             | 187       | 32.6    | 49.5             | 100.0                 |
| HAVE NOT USED   | 184       | 32.1    |                  |                       |
| UNSPECIFIED     | 12        | 2.1     |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 378

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 11 ==           |
| 2.0                    | 19 ==           |
| 3.0                    | 40 =====        |
| 4.0                    | 121 =====       |
| 5.0                    | 187 =====       |

TABLE 4-5. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - INTERPERSONAL CARE

SURVEY QUESTION 19. Friendliness and courtesy shown to you by doctors and medical staff.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 21        | 3.7     | 3.7              | 3.7                   |
| 2.0             | 50        | 8.7     | 8.8              | 12.5                  |
| 3.0             | 92        | 16.0    | 16.2             | 28.7                  |
| 4.0             | 168       | 29.3    | 29.6             | 58.3                  |
| 5.0             | 237       | 41.3    | 41.7             | 100.0                 |
| HAVE NOT USED   | 5         | .9      |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 568

=====CLASS LIMITS===== FREQUENCY .....

|     |     |       |
|-----|-----|-------|
| 1.0 | 21  | ===== |
| 2.0 | 50  | ===== |
| 3.0 | 92  | ===== |
| 4.0 | 168 | ===== |
| 5.0 | 237 | ===== |

SURVEY QUESTION 20. Friendliness and courtesy shown to you by the administrative staff (e.g., receptionists).

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 37        | 6.4     | 6.5              | 6.5                   |
| 2.0             | 59        | 10.3    | 10.4             | 17.0                  |
| 3.0             | 127       | 22.1    | 22.4             | 39.4                  |
| 4.0             | 170       | 29.6    | 30.0             | 69.4                  |
| 5.0             | 173       | 30.1    | 30.6             | 100.0                 |
| HAVE NOT USED   | 7         | 1.2     |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 566

=====CLASS LIMITS===== FREQUENCY .....

|     |     |       |
|-----|-----|-------|
| 1.0 | 37  | ===== |
| 2.0 | 59  | ===== |
| 3.0 | 127 | ===== |
| 4.0 | 170 | ===== |
| 5.0 | 173 | ===== |

# Customer Assessment

120

TABLE 4-5 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - INTERPERSONAL CARE

SURVEY QUESTION 21. Personal interest in you and your medical problem.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 33        | 5.7     | 5.8              | 5.8                   |
| 2.0             | 77        | 13.4    | 13.5             | 19.3                  |
| 3.0             | 117       | 20.4    | 20.5             | 39.8                  |
| 4.0             | 177       | 30.8    | 31.1             | 70.9                  |
| 5.0             | 166       | 28.9    | 29.1             | 100.0                 |
| HAVE NOT USED   | 4         | .7      |                  |                       |
| UNSPECIFIED     | 0         |         |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 570

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 33   =====      |
| 2.0                    | 77   =====      |
| 3.0                    | 117   =====     |
| 4.0                    | 177   =====     |
| 5.0                    | 166   =====     |

SURVEY QUESTION 22. Respect shown to you and attention to your privacy.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 26        | 4.5     | 4.6              | 4.6                   |
| 2.0             | 57        | 9.9     | 10.1             | 14.7                  |
| 3.0             | 112       | 19.5    | 19.8             | 34.5                  |
| 4.0             | 174       | 30.3    | 30.7             | 65.2                  |
| 5.0             | 197       | 34.3    | 34.8             | 100.0                 |
| HAVE NOT USED   | 7         | 1.2     |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 566

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 26   =====      |
| 2.0                    | 57   =====      |
| 3.0                    | 112   =====     |
| 4.0                    | 174   =====     |
| 5.0                    | 197   =====     |

TABLE 4-5 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - INTERPERSONAL CARE

**SURVEY QUESTION 23.** Reassurance and support offered to you by doctors and medical staff during a visit.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 32        | 5.6     | 5.7              | 5.7                   |
| 2.0             | 59        | 10.3    | 10.4             | 16.1                  |
| 3.0             | 115       | 20.0    | 20.4             | 36.5                  |
| 4.0             | 166       | 28.9    | 29.4             | 65.8                  |
| 5.0             | 193       | 33.6    | 34.2             | 100.0                 |
| HAVE NOT USED   | 9         | 1.6     |                  |                       |
| UNSPECIFIED     | 0         |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 565

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 32   =====      |
| 2.0                    | 59   =====      |
| 3.0                    | 115   =====     |
| 4.0                    | 166   =====     |
| 5.0                    | 193   =====     |

**SURVEY QUESTION 24.** Amount of time you have with doctors and medical staff during a visit.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 45        | 7.8     | 7.9              | 7.9                   |
| 2.0             | 78        | 13.6    | 13.6             | 21.5                  |
| 3.0             | 140       | 24.4    | 24.5             | 46.0                  |
| 4.0             | 165       | 28.7    | 28.8             | 74.8                  |
| 5.0             | 144       | 25.1    | 25.2             | 100.0                 |
| HAVE NOT USED   | 2         | .3      |                  |                       |
| UNSPECIFIED     | 0         |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 572

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 45   =====      |
| 2.0                    | 78   =====      |
| 3.0                    | 140   =====     |
| 4.0                    | 165   =====     |
| 5.0                    | 144   =====     |

TABLE 4-6. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - COMMUNICATIONS

SURVEY QUESTION 25. Explanations of medical procedures and tests.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 28        | 4.9     | 5.0              | 5.0                   |
| 2.0             | 56        | 9.8     | 10.0             | 15.0                  |
| 3.0             | 120       | 20.9    | 21.4             | 36.4                  |
| 4.0             | 177       | 30.8    | 31.6             | 67.9                  |
| 5.0             | 180       | 31.4    | 32.1             | 100.0                 |
| HAVE NOT USED   | 10        | 1.7     |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 561

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 28   =====      |
| 2.0                    | 56   =====      |
| 3.0                    | 120   =====     |
| 4.0                    | 177   =====     |
| 5.0                    | 180   =====     |

SURVEY QUESTION 26. Advice you get about ways to avoid illness and stay healthy.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 35        | 6.1     | 6.7              | 6.7                   |
| 2.0             | 56        | 9.8     | 10.7             | 17.4                  |
| 3.0             | 135       | 23.5    | 25.8             | 43.2                  |
| 4.0             | 166       | 28.9    | 31.7             | 75.0                  |
| 5.0             | 131       | 22.8    | 25.0             | 100.0                 |
| HAVE NOT USED   | 45        | 7.8     |                  |                       |
| UNSPECIFIED     | 6         | 1.0     |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 523

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 35   =====      |
| 2.0                    | 56   =====      |
| 3.0                    | 135   =====     |
| 4.0                    | 166   =====     |
| 5.0                    | 131   =====     |

TABLE 4-6 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - COMMUNICATIONS

| SURVEY QUESTION 27. Attention given to what you say. |                 |         |                  |                       |
|--|-----------------|---------|------------------|-----------------------|
| =====VALUE=====                                      | FREQUENCY       | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
| 1.0  | 36              | 6.3     | 6.4              | 6.4                   |
| 2.0  | 82              | 14.3    | 14.6             | 21.0                  |
| 3.0  | 135             | 23.5    | 24.0             | 44.9                  |
| 4.0  | 173             | 30.1    | 30.7             | 75.7                  |
| 5.0  | 137             | 23.9    | 24.3             | 100.0                 |
| HAVE NOT USED  | 6               | 1.0     |                  |                       |
| UNSPECIFIED  | 5               | .9      |                  |                       |
|  | -----           | -----   | -----            |                       |
| TOTAL  | 574             | 100.0   | 100.0            |                       |
| VALID CASES 563                                      |                 |         |                  |                       |
| =====CLASS LIMITS=====                               | FREQUENCY ..... |         |                  |                       |
| 1.0  | 36              | =====   |                  |                       |
| 2.0  | 82              | =====   |                  |                       |
| 3.0  | 135             | =====   |                  |                       |
| 4.0  | 173             | =====   |                  |                       |
| 5.0  | 137             | =====   |                  |                       |

TABLE 4-7. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - CHOICE &amp; CONTINUITY

SURVEY QUESTION 28. Number of doctors to choose from.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 69        | 12.0    | 15.0             | 15.0                  |
| 2.0             | 77        | 13.4    | 16.8             | 31.8                  |
| 3.0             | 117       | 20.4    | 25.5             | 57.3                  |
| 4.0             | 112       | 19.5    | 24.4             | 81.7                  |
| 5.0             | 84        | 14.6    | 18.3             | 100.0                 |
| HAVE NOT USED   | 108       | 18.8    |                  |                       |
| UNSPECIFIED     | 7         | 1.2     |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 459

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 69   =====      |
| 2.0                    | 77   =====      |
| 3.0                    | 117   =====     |
| 4.0                    | 112   =====     |
| 5.0                    | 84   =====      |

SURVEY QUESTION 29. Ease of seeing the doctor of your choice.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 99        | 17.2    | 22.3             | 22.3                  |
| 2.0             | 89        | 15.5    | 20.1             | 42.4                  |
| 3.0             | 75        | 13.1    | 16.9             | 59.4                  |
| 4.0             | 102       | 17.8    | 23.0             | 82.4                  |
| 5.0             | 78        | 13.6    | 17.6             | 100.0                 |
| HAVE NOT USED   | 126       | 22.0    |                  |                       |
| UNSPECIFIED     | 5         | .9      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 443

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 99   =====      |
| 2.0                    | 89   =====      |
| 3.0                    | 75   =====      |
| 4.0                    | 102   =====     |
| 5.0                    | 78   =====      |

# Customer Assessment

125

TABLE 4-7 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - CHOICE & CONTINUITY

| SURVEY QUESTION 30. Arrangements for choosing a personal doctor. |                 |         |                  |                       |
|--|-----------------|---------|------------------|-----------------------|
| =====VALUE=====  | FREQUENCY       | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
| 1.0  | 112             | 19.5    | 33.0             | 33.0                  |
| 2.0  | 58              | 10.1    | 17.1             | 50.1                  |
| 3.0  | 45              | 7.8     | 13.3             | 63.4                  |
| 4.0  | 74              | 12.9    | 21.8             | 85.3                  |
| 5.0  | 50              | 8.7     | 14.7             | 100.0                 |
| HAVE NOT USED  | 223             | 38.9    |                  |                       |
| UNSPECIFIED  | 12              | 2.1     |                  |                       |
|  | -----           | -----   | -----            |                       |
| TOTAL  | 574             | 100.0   | 100.0            |                       |
| VALID CASES 339  |                 |         |                  |                       |
| =====CLASS LIMITS=====   | FREQUENCY ..... |         |                  |                       |
| 1.0  | 112             | =====   |                  |                       |
| 2.0  | 58              | =====   |                  |                       |
| 3.0  | 45              | =====   |                  |                       |
| 4.0  | 74              | =====   |                  |                       |
| 5.0  | 50              | =====   |                  |                       |



TABLE 4-8. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - TECHNICAL QUALITY

SURVEY QUESTION 31. Thoroughness of examination and accuracy of diagnosis.

| -----VALUE----- | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 32        | 5.6     | 5.7              | 5.7                   |
| 2.0             | 63        | 11.0    | 11.2             | 16.9                  |
| 3.0             | 139       | 24.2    | 24.7             | 41.6                  |
| 4.0             | 175       | 30.5    | 31.1             | 72.8                  |
| 5.0             | 153       | 26.7    | 27.2             | 100.0                 |
| HAVE NOT USED   | 10        | 1.7     |                  |                       |
| UNSPECIFIED     | 2         | .3      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 562

| -----CLASS LIMITS----- | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 32              |
| 2.0                    | 63              |
| 3.0                    | 139             |
| 4.0                    | 175             |
| 5.0                    | 153             |

SURVEY QUESTION 32. Skill, experience, and training of doctors.

| -----VALUE----- | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 16        | 2.8     | 2.8              | 2.8                   |
| 2.0             | 56        | 9.8     | 10.0             | 12.8                  |
| 3.0             | 130       | 22.6    | 23.1             | 35.9                  |
| 4.0             | 187       | 32.6    | 33.3             | 69.2                  |
| 5.0             | 173       | 30.1    | 30.8             | 100.0                 |
| HAVE NOT USED   | 7         | 1.2     |                  |                       |
| UNSPECIFIED     | 5         | .9      |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 562

| -----CLASS LIMITS----- | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 16              |
| 2.0                    | 56              |
| 3.0                    | 130             |
| 4.0                    | 187             |
| 5.0                    | 173             |

TABLE 4-8 (CONTINUED). FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - TECHNICAL QUALITY

SURVEY QUESTION 33. Skill, experience, and training of other staff members.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 17        | 3.0     | 3.0              | 3.0                   |
| 2.0             | 74        | 12.9    | 13.3             | 16.3                  |
| 3.0             | 150       | 26.1    | 26.9             | 43.2                  |
| 4.0             | 194       | 33.8    | 34.8             | 78.0                  |
| 5.0             | 123       | 21.4    | 22.0             | 100.0                 |
| HAVE NOT USED   | 11        | 1.9     |                  |                       |
| UNSPECIFIED     | 5         | .9      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 558

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 17   ===        |
| 2.0                    | 74   =====      |
| 3.0                    | 150   =====     |
| 4.0                    | 194   =====     |
| 5.0                    | 123   =====     |

SURVEY QUESTION 34. Thoroughness of treatment.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 17        | 3.0     | 3.0              | 3.0                   |
| 2.0             | 71        | 12.4    | 12.6             | 15.6                  |
| 3.0             | 135       | 23.5    | 23.9             | 39.4                  |
| 4.0             | 186       | 32.4    | 32.9             | 72.4                  |
| 5.0             | 156       | 27.2    | 27.6             | 100.0                 |
| HAVE NOT USED   | 8         | 1.4     |                  |                       |
| UNSPECIFIED     | 1         | .2      |                  |                       |
|                 | -----     | -----   | -----            |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 565

| =====CLASS LIMITS===== | FREQUENCY ..... |
|------------------------|-----------------|
| 1.0                    | 17   ===        |
| 2.0                    | 71   =====      |
| 3.0                    | 135   =====     |
| 4.0                    | 186   =====     |
| 5.0                    | 156   =====     |

TABLE 4-9. FREQUENCY DISTRIBUTIONS FOR PREDICTOR VARIABLES - OUTCOMES

SURVEY QUESTION 35. The outcomes of your medical care (how much are you helped).

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 18        | 3.1     | 3.2              | 3.2                   |
| 2.0             | 70        | 12.2    | 12.3             | 15.5                  |
| 3.0             | 124       | 21.6    | 21.8             | 37.3                  |
| 4.0             | 183       | 31.9    | 32.2             | 69.5                  |
| 5.0             | 173       | 30.1    | 30.5             | 100.0                 |
| HAVE NOT USED   | 3         | .5      |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 568

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 18        | ==    |
| 2.0                    | 70        | ===== |
| 3.0                    | 124       | ===== |
| 4.0                    | 183       | ===== |
| 5.0                    | 173       | ===== |

SURVEY QUESTION 36. Overall quality of care and services.

| =====VALUE===== | FREQUENCY | PERCENT | VALID<br>PERCENT | CUMULATIVE<br>PERCENT |
|-----------------|-----------|---------|------------------|-----------------------|
| 1.0             | 11        | 1.9     | 1.9              | 1.9                   |
| 2.0             | 68        | 11.8    | 12.0             | 13.9                  |
| 3.0             | 128       | 22.3    | 22.6             | 36.5                  |
| 4.0             | 192       | 33.4    | 33.9             | 70.4                  |
| 5.0             | 168       | 29.3    | 29.6             | 100.0                 |
| HAVE NOT USED   | 4         | .7      |                  |                       |
| UNSPECIFIED     | 3         | .5      |                  |                       |
|                 |           |         |                  |                       |
| TOTAL           | 574       | 100.0   | 100.0            |                       |

VALID CASES 567

| =====CLASS LIMITS===== | FREQUENCY | ..... |
|------------------------|-----------|-------|
| 1.0                    | 11        | ==    |
| 2.0                    | 68        | ===== |
| 3.0                    | 128       | ===== |
| 4.0                    | 192       | ===== |
| 5.0                    | 168       | ===== |